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# PREFACE

A draft version of this protocol was produced and delivered to NOAA for review on December 6, 1996. NOAA provided written review comments to EG&G on January 10, 1997, and directed EG&G to proceed with auditing designated ships using the Draft Protocol to further test its applicability.

Throughout the following year, EG&G audited 12 ships in NOAA s fleet, and continued to research international, Federal, local, and regional compliance requirements. Through this process, EG&G obtained feedback from individual ship s crews, NOAA Corps Headquarters personnel, and regulatory agencies. This feedback resulted in several revisions to the final version.

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# EXECUTIVE SUMMARY

The purpose of this document is to provide a comprehensive checklist and reference for conducting multimedia environmental compliance audits on board National Oceanic and Atmospheric Administration (NOAA) Corps vessels. It recognizes the specific operational requirements and engineering characteristics of these vessels, and their status as public vessels, which because of their mobility may be subject to international, Federal, state, and local port regulations and guidelines in the course of carrying out their missions. It documents the source of individual protocol checklist items from international regulations down through the specific procedures and recordkeeping requirements mandated by NOAA Corps instructions and manuals.

## ES.1 BACKGROUND

As part of its ongoing effort to identify and document the level of environmental compliance at NOAA operations, NOAA is conducting environmental compliance assessments of its facilities nationwide. To ensure a common framework for evaluating results of these assessments, NOAA is using an audit protocol (*Protocol for Conducting Environmental Compliance Audits of Federal Facilities, Second Edition EPA #300-B-95-002*) developed by an interagency workgroup. This protocol identifies regulatory requirements in 16 areas defined either by the environmental media potentially affected (e.g., air or water) or the operation being conducted (e.g., hazardous waste management or pesticide management).

This protocol has worked well for land-based facilities, but it has limited use in assessing environmental compliance of active vessels of the NOAA Corps fleet. Seagoing vessels are subject to environmental regulations promulgated by the United States Coast Guard in title 33 of the Code of Federal Regulations (CFR), which are not included *per se* in the protocols developed for land-based Federal facilities. Also, certain regulations applicable to land-based facilities do not apply to active public vessels. Under the Resource Conservation and Recovery Act (RCRA), for example, under which the Environmental Protection Agency (EPA) regulates hazardous wastes, active public vessels are statutorily excluded from being generators of hazardous waste. Furthermore, the Office of NOAA Corps Operations (ONCO) has a number of internal instructions for ensuring environmental compliance of active vessels at sea which are not included in the protocols developed by the interagency workgroup.

To overcome these limitations, NOAA has developed this document as a protocol to be used in assessing the environmental compliance of active vessels in the NOAA Corps fleet. This protocol has been developed from a review of international environmental protocols, Federal environmental statutes and regulations, guidance documents from other Federal ocean-going services (U.S. Navy, U.S. Coast Guard), and internal NOAA Corps orders. Unique state and local requirements were identified by contacting the Captain of the Ports (COTPs) for the cities where NOAA Corps vessels are home ported, and by contacting state offices responsible for enforcing environmental regulations in states where NOAA vessels are based.

The protocol identifies 11 areas which would generally be applicable to vessels in the NOAA Corps fleet: Air Pollution Control, Water Pollution Control, Nonhazardous Waste Management,

Management of Waste Containing Hazardous Materials, Spill Control and Response, Management of Environmental Impacts, Hazardous Materials Management, Drinking Water Management, PCB (polychlorinated biphenyls) Management, Pesticide Management and Environmental Radiation Management. The protocol, which follows the format of the *Protocol for Conducting Environmental Audits of Federal Facilities, Second Edition*, provides a summary of applicable regulations, key compliance requirements, and individual protocol questions, citations, and auditor requirements to ensure a comprehensive assessment. Definitions applicable to the various requirements are presented as a glossary in Appendix A.

## ES.2 METHODOLOGY FOR PROTOCOL DEVELOPMENT

The development of this protocol began with a review of international and Federal regulations relating to environmental compliance by ocean-going vessels, a review of existing NOAA Corps instructions and manuals addressing environmental protection and regulatory compliance within the NOAA fleet, and a review of marine environmental compliance instructions and checklists from the two other Federal seagoing services, the U.S. Navy and the U.S. Coast Guard.

Research in compiling the protocol also included a systematic telephone survey of various environmental compliance agencies to uncover state and local requirements that may apply to vessels which are not reflected in the international and Federal guidelines or NOAA Corps instructions. This survey included contacting the Coast Guard COTP and local Port Authority in each port where NOAA vessels are home ported, as well as contacting the appropriate officials in state environmental agencies.

In December 1996, EG&G Services completed the draft NOAA Ship Environmental Compliance Protocol to be used by EG&G Audit Teams in performing environmental compliance audits on 12 operating vessels in the NOAA Fleet. As of October 1, 1997, all audits were completed and audit reports submitted to ONCO. In general, the draft Compliance Protocol has proved to be a complete and robust document in structuring and conducting the audits. However, several changes and additions were suggested based on the collective audit findings; feedback from ONCO, the Atlantic and Pacific Marine Centers, and the vessel crews; additional documentation that has become available on various laws and regulations and their applicability to NOAA vessels (as public vessels); and new information obtained on shipboard environmental compliance policy and practice from the U.S. Navy and U.S. Coast Guard. A copy of the comments from ONCO is included as Appendix B.

A summary is provided at the end of each section describing the need and rationale for the changes and additions, along with a discussion of unresolved issues that should be addressed by the ONCO.

The structure of the protocol parallels that of the NOAA Facilities Environmental Audit Protocol which is taken directly from the *Protocol for Conducting Environmental Audits at Federal Facilities, Second Edition*, EPA#300-B-95-002, February 1995. This document provides a section-by-section approach to conducting audits, with each section focusing on a specific environmental media (e.g., air, water, groundwater), pollution problem (e.g., hazardous waste, solid waste, PCBs,

pesticides), or management issue. Only those media, pollution problems, and management issues directly related to vessels have been included in the NOAA vessel protocol.

Each section of the protocol includes a concise summary of applicable statutes and regulations, key compliance documents, followed by a list of records and physical features to be inspected. Detailed checklists of individual compliance requirements are provided for each of the 11 media, pollution problems and environmental management issues applicable to ships. These checklists provide specific protocols and review actions of auditors necessary for a comprehensive audit.

## ES.3 SUMMARY OF REQUIREMENTS

As mentioned above, the specific marine environmental compliance requirements that are contained in this protocol are derived from international protocols and guidelines, Federal statutes and regulations, state and local requirements, and internal NOAA Corps instructions. It is important to recognize that NOAA ships are somewhat unique as seagoing vessels and "public vessels" owned and operated by the United States, both in function and legal status. Accordingly, they are often technically exempt from various environmental laws and regulations that apply to onshore facilities and commercial vessels, as stipulated in the laws and regulations themselves. In other cases, although they are not specifically exempted from the laws and regulations, these laws and regulations may be clearly "not applicable" because vessels meet none of the criteria specified in the law or regulation. Often, although the laws and regulations are not technically binding, the intent and provisions of the laws and regulations are applicable to NOAA vessels through Executive Orders or NOAA Corps instructions. In some cases, protocol requirements are considered "good marine practice" based on the procedures followed by other seagoing services.

### ES.3.1 INTERNATIONAL PROTOCOLS AND GUIDELINES (MARPOL)

The primary international regulations governing U.S. vessels are Annexes I, II, and V of MARPOL 73/78 promulgated by the International Maritime Organization (IMO). Annexes I and II deal with the Discharge of Oil and Hazardous Substances into the ocean, and Annex V deals with the Discharge of Garbage and Plastics at sea. Although the United States has not yet adopted Annex IV which deals with the Discharge of Sewage, U.S. vessels are subject to parallel requirements under 33 CFR 159. Future MARPOL regulations will address the issues of air pollution by vessels, and the management of ballast water to prevent the introduction of pollutants and non-indigenous species into coastal areas. Voluntary guidelines on the management of ballast water have already been promulgated by IMO.

The applicability of MARPOL to NOAA Ships deserves some mention. Article 3 (3) of MARPOL 73/78 states that the Convention does not apply to "any warship, naval auxiliary, or other ship owned or operated by a State and used, for the time being, only on government non-commercial service." However, Article 3 (3) goes on to say that each Party to the Convention should operate these ships "in a manner consistent, so far as is reasonable and practicable, with the present Convention." In becoming party to Annex V of MARPOL, through the 1987 Amendment to the Act to Prevent Pollution from Ships (APPS), Congress did not adopt the "reasonable and practicable" requirement for U.S. warships, but instead looked for full compliance with all of Annex V by 1994.

In the 1994 legislation amending AAPS (National Defense Authorization Act), Congress extended the deadline for full compliance to the year 2000 for surface ships. The Navy is proceeding aggressively with Annex V compliance (DoD Record of Decision dated 31 January 1997). It is clear that Congress wishes full compliance with MARPOL by public vessels, and that the Navy is moving in this direction. As a matter of policy, NOAA ships should therefore comply with all applicable provisions of MARPOL, unless compliance would be clearly unreasonable and impractical, and this can be clearly substantiated.

Under MARPOL, certain geographic areas of the world are designated as Special Areas, which because of their oceanographic and ecological characteristics, require more stringent pollution discharge restrictions than are normally required under MARPOL. There are currently eight such areas under MARPOL, including the Mediterranean, North Sea, Baltic Sea, Black Sea, Red Sea, Persian Gulf Area, Antarctic area, and Wider Caribbean as indicated in Figure 1. Although these areas have been formally designated under MARPOL, the upgraded pollution discharge restrictions are only in effect (or in force) in three: the North Sea, Baltic Sea, and the Antarctic. They will come into effect in other areas over time as adequate reception facilities become available in each area.

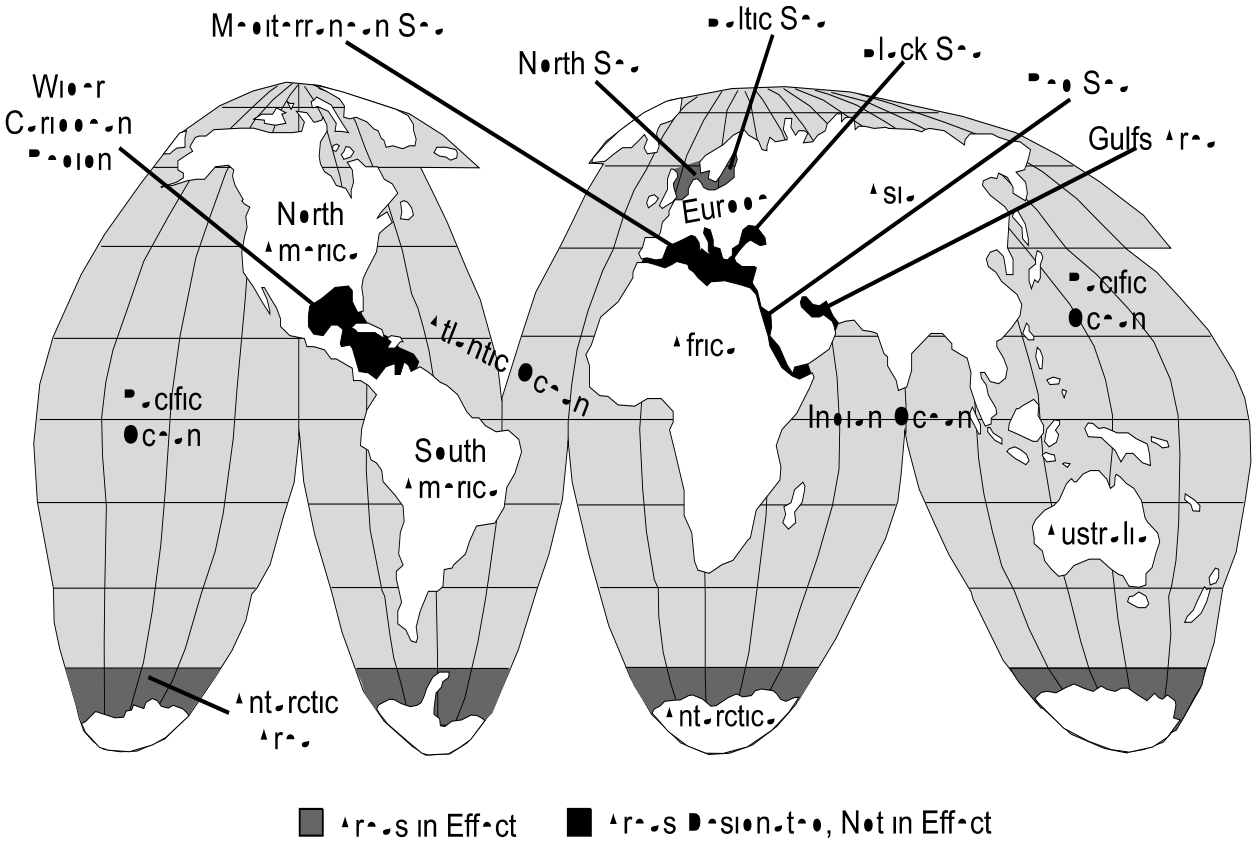


***Figure 1. MARPOL Annex V Special Areas***

### ES.3.2 FEDERAL LAWS AND REGULATIONS

In addition to international regulations, NOAA vessels are subject to various Federal laws (e.g., Clean Water Act (CWA), Clean Air Act (CAA), National Environmental Policy Act (NEPA)) and regulations contained in the CFR. The primary CFR titles relevant to environmental compliance on NOAA Corps vessels are 33 CFR dealing with Navigation and Navigable Waters and 40 CFR dealing with Environmental Protection. Additional relevant guidance for NOAA ships is contained in 46 CFR 147 dealing with Hazardous Ship s Stores and 46 CFR 188 dealing with Oceanographic Research Vessels. Although these two parts of 46 CFR do not formally apply to NOAA ships as public vessels, which are not inspected by the Coast Guard, their provisions are clearly relevant to shipboard health and safety, and should be adopted as best management practice. These laws and regulations are further amplified by Executive Orders, which often make the intent and requirements applicable to Federal facilities and actions, even though Federal agencies may have been initially exempted under the law itself.

### ES.3.3 STATE AND LOCAL REQUIREMENTS

In general, most states and port authorities follow the international and Federal laws and regulations, with the exception that some states and ports have specific "no discharge" zones for treated sewage effluent and graywater. In addition, ports and municipalities in ozone nonattainment areas may have specific air quality standards. These standards should be identified in preparation for port-specific audits by reviewing applicable State regulations with respect to specific vessel activities, reviewing port tariffs for vessel home ports and ports of entry, and where appropriate consulting with regional and local environmental compliance officials.

### ES.3.4 NOAA CORPS INSTRUCTIONS

The primary NOAA Corps instructions relevant to shipboard environmental compliance are NC Instruction 5100.1B Safety Standards for Ships of the NOAA Fleet (which became effective 1 January 1997); NC Instruction 6280B, Hazardous Materials and Hazardous Waste Management, which includes the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual*; NC Instruction 9516 Chlorofluorocarbon Refrigerant Abatement ; NC Instruction 9540, Shipboard Oil Pollution Emergency Plans"; and the NOAA Fleet Shipboard Oil Pollution Emergency Plan (SOPEP). Additional information on internal NOAA environmental compliance policy and procedures was obtained during visits to the Atlantic Marine Center (AMC) and Pacific Marine Center (PMC), which included tours of several vessels home ported there and discussions with NOAA environmental managers.

### ES.3.5 GOOD M ARINE PRACTICES

To identify additional environmental policies and procedures which constitute "good marine practice," and to ensure consistence with other seagoing services, the U.S. Navy and U.S. Coast Guard were contacted to obtain their instructions and checklists governing vessel compliance. A copy of Chapter 15 and Appendix K of OPNAVINST 5090.1B was obtained from the Navy Chief of

Naval Operations (CNO) Environmental Programs Office, which provides the latest policy and procedures, and audit criteria for environmental compliance aboard Navy vessels. That appendix is essentially the same audit checklist used by the U.S. Coast Guard in auditing their vessels. A copy of the Coast Guard's Commanding Officer s Environmental Guide (COMDTPUB 5090.1) was obtained and reviewed because of its concise, comprehensive treatment of agency environmental compliance requirements, procedures and practice. The Coast Guard s Hazardous Waste Management Manual (COMDTINST 16478.1B) was also obtained and reviewed because of its comprehensive treatment of hazardous waste management requirements and procedures.

### ES.3.6 COMPILATION OF REQUIREMENTS

The following discussion provides a concise overview of the statutes, regulations, and guidelines that pertain to specific shipboard environmental compliance issues, and explains why certain statutory areas would not be applicable to NOAA Corps vessels.

Table 1 lists the pollution discharge restrictions under the MARPOL Convention. The requirements vary with distance from shore, and with location if the ship is in one of the MARPOL-designated special areas.

Table 2 presents a summary of state and local port requirements based on input from local port authorities, Coast Guard COTPs, and appropriate state officials.

Table 3 summarizes the applicable international protocols, Federal statutes and regulations, and NOAA Corps instructions. This table lists each compliance topic and presents the relevant requirements. Specific discussions on each compliance topic are presented below.

***General Air Emissions.*** The primary statutes addressing air emissions in the United States are the CAA of 1977 and the CAA Amendments (CAAA) of 1990. These statutes define the national strategy and program for improving air quality nationwide. Implementation and enforcement of these regulations is accomplished at the state level through the Air Quality Control Region (AQCR) regulations. There are currently no national standards for vessel emissions, and seagoing vessels would not qualify as emission sources or facilities under Federal permitting requirements of the CAAA. However, NOAA vessels may be subject to specific state requirements in home port and ports of entry particularly in states which are not in attainment of one or more national ambient air quality standard.

At present there are no international guidelines for vessel air emissions. However, the IMO is in the process of formulating vessel air quality guidelines under the proposed Annex VI under MARPOL 73/78.

***Table 1. Summary of Pollution Discharge Restrictions Under MARPOL 73/78 As Amended***

| AREA | SEWAGE | OILY WASTE | TRASH (NON-PLASTIC) | PLASTICS | GARBAGE (FOOD WASTES) | HAZARDOUS WASTES |
|---|---|---|---|---|---|---|
| 0-3 nm | Discharge permitted through an approved Marine Sanitation Device (MSD) | Discharge <15 ppm oil. No sheen. | No discharge | No discharge | No discharge | No discharge ≥ Reportable Quantity (RQ) |
| 3-12 nm | No prohibition | Discharge <15 ppm oil. No sheen. | No discharge (unless ground to <1 inch) | No discharge | No discharge (unless ground to <1 inch) | No discharge ≥ RQ (Unless permitted under Annex II of MARPOL) |
| 12-25 nm | No prohibition | Discharge <15 ppm oil with an Oily Water Separator, monitor, and alarm. No sheen. | Discharge permitted, except dunnage (lining and packing material that float) | No discharge | Discharge permitted | Same as 3-12 nm |
| >25 nm | No prohibition | Same as 12-25 nm | Discharge permitted | No discharge | Discharge permitted | Same as 3-12 nm |
| >50 nm High seas | No prohibition | Same as 12-25 nm | Discharge permitted | No discharge | Discharge permitted | Same as 3-12 nm |
| MARPOL special areas | Refer to local guidelines | No discharge | No discharge | No discharge | No discharge (unless beyond 12 nm and ground to <1 inch) | Not applicable |

*Table 2. Survey of State and Local Port-Specific Environmental Requirements Applicable to NOAA Vessels*

| AGENCY AND OFFICIAL CONTACTED | APPLICABLE REQUIREMENTS |
|---|---|
| ***Woods Hole, Massachusetts*** | |
| Coast Guard Captain of the Port, Providence, RI (401-435-2300) | No port-specific requirements |
| Massachusetts Port Authority (MASSPORT) (617- 973-5653) | No port-specific requirements |
| Massachusetts Department of Environmental Protection, Division of Water Pollution Control (508-946-2757) | No port-specific requirements unless vessel has National Pollution Discharge Elimination System (NPDES) permit issued by State. |
| ***Norfolk (Port of Hampton Roads), Virginia*** | |
| Coast Guard Captain of the Port, Hampton Roads (757-441-3516) | No port-specific requirements |
| State of Virginia, Department of Environmental Quality (757-518-2000) | No port-specific requirements |
| Virginia Port Authority, Hampton Roads (804-762-4278) | No port-specific requirements. Port of Virginia follows Coast Guard and Corps of Engineers regulations. |
| ***Charleston, South Carolina*** | |
| Coast Guard Captain of the Port, Charleston (803-724-7683) | No Coast Guard port-specific requirements |
| South Carolina Dept. Of Health & Environmental Control (803-740-1590) | No State port-specific requirements |

*Table 2. Survey of State and Local Port-Specific Environmental Requirements Applicable to NOAA Vessels*

| AGENCY AND OFFICIAL CONTACTED | APPLICABLE REQUIREMENTS |
|---|---|
| South Carolina Port Authority (803-723-8651) | No South Carolina Port Authority port-specific requirements |
| ***Pascagoula, Mississippi*** | |
| Coast Guard Captain of the Port, Mobile, Alabama (601-762-4041) | No Coast Guard port-specific requirements |
| Mississippi Dept. of Environmental Quality (601-961-5079) | No State port-specific requirements. |
| Pascagoula Port Authority (601-762-4041) | Pascagoula has port-specific requirements as reflected in the port tariff. These include prohibitions on nuisance discharging of smoke or fumes. Otherwise they reflect Federal requirements. |
| ***San Diego, California*** | |
| Coast Guard Captain of the Port, San Diego (619- 683-6500) | No Coast Guard port-specific requirements but California Regional Water Quality Board has established no discharge zone in San Diego Bay. |
| San Diego Regional Water Quality Board (619- 467-2990) | No discharge zone for sewage has been established in San Diego Bay in areas where water depth is less than 30 feet (measured from MLLW). Discharge of graywater is prohibited where it causes pollution, contamination, or a nuisance. |
| Port of San Diego (619-686-6200) | No port-specific requirements other than no discharge of sewage in San Diego Bay. |
| ***Seattle (Puget Sound), Washington*** | |
| Coast Guard Captain of the Port, Puget Sound (206-217-6232) | No port-specific requirements. |
| State of Washington, Office of Marine Safety (206-664-9123) | Office of Marine Safety requirements address marine safety and oil spill prevention and response from commercial vessels. |

*Table 2. Survey of State and Local Port-Specific Environmental Requirements Applicable to NOAA Vessels*

| AGENCY AND OFFICIAL CONTACTED | APPLICABLE REQUIREMENTS |
|---|---|
| State of Washington<br>Dept. of Ecology<br>(206-649-7130)<br>(206-649-7025) | Oil spill prevention and response regulations follow Federal regulations. Lake Union is considered a no discharge zone for sewage. Lake Union is also a no discharge zone for graywater in that vessels generally cannot meet the coliform, pH and dissolved oxygen effluent standards under WAC 173.201A and RCW 90.48.080 (copies obtained). |
| Port of Seattle<br>Commission<br>(206-728-3000) | No port-specific requirements. |
| ***Honolulu, Hawaii*** | |
| Coast Guard Captain of the Port, Honolulu<br>(808) 927-0874 | No Coast Guard port-specific requirements. State of Hawaii has established sewage no discharge zone in Honolulu Harbor. There is a State prohibition against overboard discharges that cause a discoloration of the water. |
| State of Hawaii Department of Health<br>(808) 586-4309 | No discharge of sewage into Pearl Harbor or other discharges not in compliance with State regulations. |
| Port of Oahu Harbor Master<br>(808-557-2057) | No port-specific requirements. |

***Table 3. Summary Matrix of International Protocols, Federal Statutes and Regulations, and NOAA Guidelines Applicable to NOAA Vessels***

| COMPLIANCE TOPIC | INTERNATIONAL PROTOCOL | FEDERAL LAWS AND REGS. | NOAA INSTRUCTIONS |
|---|---|---|---|
| *GENERAL AIR EMISSIONS* | None at present | CAA<br>CAAA<br>As implemented by State AQCR regulations | No specific instruction |
| *OZONE-DEPLETING SUBSTANCES* | Montreal Protocol | CAA Section 608<br>CAAA of 1990<br>40 CFR 82 | NC Instruction 9516 |
| *ASBESTOS ABATEMENT* | None at present | Toxic Substances Control Act (TSCA) | NC Instruction 5100.1B Section 9-6, NOAA Fleet HM/HW Manual |
| *SEWAGE AND GRAYWATER DISCHARGE AT SEA* | None at present<br>MARPOL 73/78, Annex IV pending adoption | CWA<br>33 CFR 159<br>40 CFR 140 | NC Instruction 5100.1B Section 9-3 |
| *DISCHARGES TO SHORE-SIDE TREATMENT FACILITIES* | No international guidelines; specific guidelines may apply for foreign ports | CWA as amended<br>40 CFR 503 | No specific instruction |
| *BALLAST WATER MANAGEMENT* | IMO Resolution A.774(18) | Non-Indigenous Species Control Act<br>National Invasive Species Control Act<br>33 CFR 1500 | No specific instruction. Coast Guard and Navy practice ballast water exchange beyond 12 nm. |
| *SOLID WASTE MANAGEMENT AND RECYCLING* | None at present | RCRA<br>40 CFR 243 | NC Instruction 5100.1B Section 4, Marine Center Guidelines |
| *DISPOSAL OF GARBAGE AT SEA* | MARPOL 73/78, Annex V | CWA Refuse Act<br>33 CFR 151 | NC Instruction 5100.1B Section 9-4 |
| *DISPOSAL OF USDA REGULATED FOOD WASTE* | None | 7 CFR 330 | No specific instruction |
| *WASTE CONTAINING HAZARDOUS MATERIALS* | None | RCRA provisions as per NOAA Instructions | NC Instruction 6280B NOAA Fleet HM/HW Manual |
| *OIL AND OILY WASTE HANDLING AND DISCHARGE* | MARPOL 73/78, Annex I Regs. 9, 10, 16 and 20 | CWA<br>33 CFR 152 | NC Instruction 5100.1B Section 9-2 |

***Table 3. Summary Matrix of International Protocols, Federal Statutes and Regulations, and NOAA Guidelines Applicable to NOAA Vessels***

| COMPLIANCE TOPIC | INTERNATIONAL PROTOCOL | FEDERAL LAWS AND REGS. | NOAA INSTRUCTIONS |
|---|---|---|---|
| *PREVENTION OF OIL DISCHARGE DURING OIL TRANSFER OPERATIONS* | None | CWA<br>33 CFR 156 | NC Instruction 5100.1B Section 9-2 |
| *SPILL CONTINGENCY PLANNING AND RESPONSE* | MARPOL 73/78, Annex I Regulation 26 | 33 CWA 151.26 | NC Instruction 9540 NOAA Fleet Shipboard Oil Pollution Emergency Plan. |
| *ENVIRONMENTAL IMPACT MITIGATION* | Madrid Protocol for Antarctic | ESA of 1973<br>MMPA<br>MPRSA of 1972 | No specific instruction |
| *HAZARDOUS MATERIALS MANAGEMENT* | None | Occupational Safety and Health Act (OSHA) as applicable through E.O. 12196<br>Hazardous Materials Transportation Act<br>29 CFR 1910<br>40 CFR 171-172 | NC Instruction 6280B NOAA Fleet HM/HW Manual |
| *SHIPBOARD DRINKING WATER SUPPLY* | None | Safe Drinking Water Act<br>40 CFR 140 | NC Instruction 5100.1B Section 8-6 NOAA Fleet Medical Policy Manual, Appendix D |
| *PCB MANAGEMENT* | None | TSCA<br>40 CFR 761 | No specific instructions |
| *PESTICIDE MANAGEMENT* | None | Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)<br>40 CFR 151<br>40 CFR 165-166<br>40 CFR 171 | |

***Ozone-Depleting Substances (ODS).*** The Montreal Protocol, an international agreement, calls for the end of production of ozone-depleting chemicals within 10 years. The CAA of 1977, Section 608, and Amendments of 1990 are the applicable Federal statutes. The Federal regulations governing the control and abatement of ODS refrigerants, the most common ODS on board vessels, are contained in 40 CFR 82. These regulations apply to the substance itself rather than the specific location or activity, and hence the provisions are directly applicable to NOAA vessels. Procedures or the handling and abatement of ODS refrigerants aboard NOAA vessels are specified in NC Instruction 9516, Chlorofluorocarbon Refrigerant Abatement.

***Asbestos Abatement.*** The control of airborne asbestos is addressed in the TSCA with asbestos control regulations provided in 40 CFR 60-61. These regulations address the handling and disposal of asbestos under all circumstances and do not specifically exclude vessels. The provisions of 40 CFR 60-61 have been amplified and made part of NOAA operating procedures by NOAA Corps Instruction 5100.1B "Safety Standards for Ships of the NOAA Fleet and the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual.* In addition, States and local port municipalities may have stricter regulations governing asbestos, particularly asbestos disposal.

***Sewage and Graywater Discharge at Sea.*** MARPOL Annex IV sets forth international regulations for the prevention of pollution by sewage from ships and specifies discharge limitations and treatment requirements (performance specifications for marine sanitation devices). Although this Annex has not been formally adopted by the United States, similar requirements on the discharge and treatment of sewage are set forth for U.S. vessels in 33 CFR 159, which applies to public vessels. Under 40 CFR 140, states may establish no discharge zones for the discharge of any sewage. Regulations on the discharge of graywater may apply at the state or local home port level. Some states and municipalities have adopted regulations and ordinances which limit the discharge of graywater in certain areas.

***Discharges to Shoreside Treatment Plants.*** The primary Federal statute addressing discharge of sewage to shoreside treatment plants is the CWA of 1977, with specific implementation, monitoring and enforcement provisions set forth in 40 CFR 503. These provisions apply to vessels when discharging sewage and graywater to publicly or Federally owned treatment works (POTW/FOTW).

***Ballast Water Management.*** In recent years, the control of ship's ballast water has become an important environmental issue as the uncontrolled loading, transport, and discharge of ballast water from port-to-port has resulted in the migration of unwanted non-indigenous species, and the introduction of pathogens into coastal areas. The International IMO has adopted a voluntary resolution (A.774(18)) calling for the deep ocean exchange of ballast water to prevent the introduction of unwanted aquatic organisms and pathogens. This resolution has been published as a voluntary guideline for ships entering U.S. coastal areas by the U.S. Coast Guard. To prevent further introduction into the Great Lakes and Hudson River, 33 CFR 1500 requires deep ocean ballast water exchange (or equivalent control measures) for all vessels entering these areas. In keeping with the intent of these regulations and guidelines, Coast Guard and Navy vessels are now routinely exchanging ballast water outside of the 12 nm limit prior to entering U.S. ports from foreign voyages.

***Solid Waste Management and Recycling.*** RCRA is the primary Federal statute addressing the recycling and disposal of solid waste. The mandates of this statute are implemented through 40 CFR

243. Executive Order 12873 requires Federal agencies to promote cost-effective waste reduction and recycling at their activities. Although RCRA and 40 CFR 243 do not specifically apply to U.S. public vessels, many of the provisions and practices contained therein have been included as good management practice (MP), and as a means for complying with the discharge-at-sea restrictions contained in MARPOL 73/78 Annex V and 33 CFR 151.51 through 151.77.

***Disposal of Garbage at Sea.*** The disposal of garbage and other waste at sea, which was previously a long-standing marine practice, has come under increasing scrutiny in recent years, particularly the disposal of plastics and hazardous materials. MARPOL 73/78 Annex V addresses the Prevention of Pollution by Garbage at Sea at the international level. In becoming party to Annex V of MARPOL, through the 1987 Amendment to the Act to Prevent Pollution from Ships (APPS), Congress mandated full compliance with all of Annex V by 1994, including warships and public vessels. In the 1994 legislation amending the AAPS (National Defense Authorization Act), Congress extended the deadline for full compliance to the year 2000 for surface ships. The Navy is proceeding aggressively with Annex V compliance (DOD Record of Decision dated 31 January 1997). The specific requirements of Annex V are implemented for the U.S. through 33 CFR 151. Amplifying guidance for MARPOL V compliance by NOAA ships is contained in Section 9-4 of NC Instruction 5100.1B.

***Disposal of United States Department of Agriculture (USDA) Regulated Food Waste.*** Garbage and unused food articles originating outside of the U.S. must be handled according to USDA requirements to prevent the dissemination of foreign pests and diseases that pose a danger to U.S. public health and agriculture. These requirements are specified in 7 CFR 330; advance notification requirements for vessels entering U.S. ports are contained in 7 CFR 330.111.

***Disposal of Medical Waste at Sea.*** The U.S. Public Vessel Medical Waste Anti-Dumping Act prohibits the dumping of medical waste by public vessels into ocean waters, except during wartime or emergency conditions. OSHA addresses the handling and disposal of medical wastes and applies to Federal employees through Executive Order. Regulations governing the handling and disposal of medical waste are contained in 40 CFR 240 and 29 CFR 1910.1030.

***Management and Disposal of Wastes Containing Hazardous Substances.*** The primary Federal statute dealing with the handling, storage, treatment, and disposal of hazardous wastes is RCRA. This statute is implemented through the regulations contained in 40 CFR 260 through 268. Handling of waste oil is addressed in 40 CFR 279. Technically, NOAA vessels are exempt from the provisions of RCRA by Section 3022 (42 USC 6939d), which stipulates that any hazardous waste generated on board a public vessel shall not be subject to the storage, manifest, inspection, or recordkeeping requirements of RCRA, until such wastes are transferred to a shoreside facility, unless the ship is placed in reserve or the wastes are transferred to and stored on another public vessel for more than 90 days. Thus, NOAA vessels do accumulate and handle what is described as wastes containing hazardous materials, which become hazardous wastes under RCRA when transferred to shoreside facilities. Accordingly, identification, handling, storage, and disposal guidelines have been developed in NC Instruction 6280B, Hazardous Materials and Hazardous Waste Policy, Guidance and Training, and the NOAA Fleet Hazardous Materials and Hazardous Waste (HM/HW) Manual.

***Oil and Oily Waste Handling and Discharge.*** MARPOL 73/78, Annex I provides international requirements for the shipboard handling of oily wastes and the prevention of oil and oily waste

discharges at sea. Annex I is implemented in the United States by the AAPS. Discharge of oil and oily wastes into U.S. navigable waters is also prohibited under Section 311 of the CWA. U.S. regulations for the handling and discharge of oil and oily wastes are contained in 33 CFR 151. The provisions of 33 CFR 151 apply to all vessels subject to Annex I (includes NOAA vessels). NC Instruction 5100.1B, Safety Standards for Ships of the NOAA Fleet, Section 9-2, provides specific guideline for NOAA vessels.

***Prevention of Oil Discharge During Oil Transfer Operations.*** The transfer of oil to and from NOAA vessels is regulated by 33 CFR 156, Oil and Hazardous Material Transfer Operations, providing that the vessel can carry 250 barrels or more of oil. These regulations are further amplified by NC Instruction, 5100.1B, Safety Standards for Ships of the NOAA Fleet, Section 9-2 .2 and 9-2.3.

***Spill Contingency Planning and Response.*** International requirements for shipboard oil spill contingency planning and response are contained in MARPOL 73/78, Annex I, Regulation 26 (Shipboard Oil Pollution Emergency Plan). This requirement is implemented in the U.S. through AAPS as specified in 33 CFR 151. Internal guidance for oil spill preparedness and response is contained in NC Instruction 9540, Shipboard Oil Pollution Emergency Plans, and the generic NOAA SOPEP. Although this instruction is still in draft form, it provides the recommended format for NOAA ship contingency plans which will ensure full compliance with Regulation 26 of MARPOL Annex I.

***Comprehensive Environmental Response Compensation and Liability Act/Superfund Amendments and Reauthorization Act (CERCLA/SARA).*** Vessels are excluded under the definition of facility (40 CFR 302.2). Therefore, the provisions of CERCLA/SARA would not apply to NOAA Corps ships.

***Management of Environmental Impacts.*** The NEPA is the primary mandate for Federal agencies in ensuring that their activities do not cause adverse impacts to the environment. Normally, operations by NOAA vessels will not result in such impacts. Additional mandates for the protection of endangered species, marine mammals, and sensitive marine environments are provided by the Endangered Species Act (ESA) of 1993, the Marine Mammal Protection Act (MMPA), and the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972. NOAA vessels are thus required to monitor their activities when operating in areas where endangered species, marine mammals, or sensitive marine environments are known to exist, to prevent or mitigate adverse impacts. It should be noted that a lawsuit was recently filed against the U.S. Coast Guard for conducting operations in a manner that adversely impacted right whales. Since then, the Coast Guard has completed an Environmental Impact Statement addressing marine mammal protection and issued internal guidelines for their protection while underway.

***Hazardous Materials Management.*** The primary statute covering the management of hazardous materials in the United States is the OSHA as last amended in November of 1990. OSHA is implemented through 29 CFR 1910. Although OSHA does not directly apply to Federal personnel and facilities under the act itself, Executive Order 12196 makes the intent and provisions of OSHA applicable to Federal employees. Additional relevant guidance for NOAA ships is contained in 46 CFR 147 dealing with Hazardous Ship s Stores and 46 CFR 188 dealing with Oceanographic Research Vessels. Although these two Parts of 46 CFR do not formally apply to NOAA ships as

public vessels, which are not inspected by the Coast Guard, their provisions are clearly relevant to shipboard health and safety and should be adopted as best management practice.

The Hazardous Materials Transportation Act of 1975 governs the transportation of hazardous materials. Although NOAA vessels are not transporters of hazardous materials, NOAA vessel personnel must comply with the provisions of the law as implemented in 49 CFR 171-172 when consigning hazardous materials for transport by a commercial carrier. Internal guidance on hazardous materials identification, handling, and storage are provided in NC Instruction 6820, Hazardous Materials and Hazardous Waste Policy, Guidance and Training and the NOAA Fleet Hazardous Materials and Hazardous Waste (HM/HW) Manual.

***Emergency Planning and Community Right-to-Know Act (EPCRA).*** EPCRA (also known as SARA Title III) is designed to promote emergency planning and preparedness at both the State and local level in response to spills and releases of extremely hazardous substances, hazardous substances, toxic chemicals and RCRA hazardous wastes as defined in 30 CFR 355, 40 CFR 302. 40 CFR 372.65, and 40 CFR 261.33. Under Section 329 of EPCRA, a facility includes buildings, equipment, structures, and other stationary items. Under Emergency Notification provisions (Section 304), a facility includes motor vehicles, rolling stock, and aircraft. Vessels are not explicitly identified. Therefore, active sea-going NOAA Corps vessels would be exempt from EPCRA. In addition, NOAA vessels would not hold reportable quantities of chemicals covered under EPCRA.

***Cultural and Historic Resources Management.*** The primary U.S. statute governing the preservation of cultural and historic resources is the National Historic Preservation Act (NHPA) of 1966. The NEPA also addresses adverse impacts to cultural and historic resources through Federal actions. There are no vessels in the NOAA fleet which qualify as historic sites. In addition, NOAA vessel operations do not impact on cultural or historic resources. Accordingly, these statutes and regulations do not apply to NOAA vessels.

***Storage Tank Management.*** The storage tank management provisions of RCRA do not apply to tanks aboard NOAA vessels. Onboard portable storage tank requirements are addressed under Hazardous Materials Management.

***Shipboard Drinking Water Supplies.*** The primary statute protecting drinking water resources in the United States is the Safe Drinking Water Act (SDWA). Some NOAA vessels could be required to comply with the provisions of the SDWA. Sections 1412, 1414 and 1415(a) of the SDWA authorize the EPA to promulgate drinking water regulations and specific operating procedures for public water systems, which are either community or non-community water systems under 40 CFR 141.2. In 1987, EPA amended 40 CFR 141.2 to include *non-transient, non-community water systems* that serve at least the same 25 people for 6 months per year. This definition includes many workplace and institutional water systems that collect or treat drinking water for internal (on-site) consumption, and could include larger vessels in the NOAA Corps fleet. NOAA vessels also must comply with the provisions of NC Instruction 5100.1B, Safety Standards for Ships of the NOAA Fleet, Section 8-6, and Appendix D of the NOAA Fleet Medical Policy Manual (USPHS Pub. No. 68). The Coast Guard and Navy are not now formally adhering to the EPA standards, but follow internal guidelines for drinking water quality monitoring, similar to those being used aboard NOAA ships.

***PCB Management.*** The management and abatement of PCBs in the United States is governed by the provisions of TSCA. This statute is implemented by the regulations contained in 40 CFR 761. The PCB-containing items most likely to be found aboard NOAA vessels are electrical insulation, gaskets and other solid materials which are covered by 40 CFR 761.30.

***Pesticide Management.*** FIFRA, as last amended in December 1991, deals with the sale, distribution, transportation, storage, and use of pesticides. The provisions of the statute are implemented by the regulations in 40 CFR 152, 40 CFR 165-166 and 40 CFR 171.

***Environmental Radiation Protection.*** The Atomic Energy Act of 1954, as Amended, established the Nuclear Regulatory Commission (NRC) and addresses the use, possession, storage and disposal of nuclear source material, byproduct material, and special nuclear material. Regulations promulgated by the NRC under this Act also address the packaging of radioactive material for transport. Supplement 7 of the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual* presents guidance on handling low-level radioactive material that may be carried on board ships for scientific purposes. As a matter of NOAA policy, NOAA ships do not hold NRC licenses for the possession or use of radioactive materials. If such materials are to be used for scientific purposes on board a NOAA ship, the scientific party proposing the work is responsible for obtaining and maintaining a valid NRC license for the material. Supplement 7 to NC Instruction 6280B requires that NOAA ships receive a copy of the NRC license of any visiting scientific party proposing to bring licensed material on board. Management of environmental radiation is addressed in Section 11 of this protocol.

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# 1.0 AIR POLLUTION CONTROL ENVIRONMENTAL COMPLIANCE PROTOCOL

This section includes regulations, responsibilities, and compliance requirements associated with air emissions from vessels. Some minor modifications to this protocol were made in this final version and these are noted where applicable in this section.

Although sea-going vessels are not facilities (i.e., stationary sources) within the technical definitions of the CAAA and are not, therefore, subject to Federal permitting requirements, State Implementation Plans (SIPs) implemented under the CAAA could include public vessels and could restrict air emissions from NOAA Corps vessels while in port. Several other requirements may also apply. The major types and sources of air emissions from NOAA Corps vessels could include:

Particulates, sulfur dioxide ($SO_{2)}$, nitrous oxide ($NO_x$), and CO from fuel burning engines, generators, and boilers

Particulates and toxic air emissions from the operation of general waste, classified material, and medical, pathological, and/or infectious waste incinerators

The emission of Volatile Organic Compound (VOC) vapors from vessel maintenance and other processes (paint stripping and metal finishing) that use solvents

Asbestos emissions from vessel maintenance and renovation operations

Discharge of ODSs during the operation, repair and disposal of refrigeration and air conditioning equipment

Most vessels have ongoing and potential air emissions sources in one or more of these categories. Therefore, this section is applicable to some extent for all vessels.

Assessors should review the agency, Federal, State, and local regulations to perform a comprehensive assessment.

## 1.1 FEDERAL REQUIREMENTS RELATED TO AIR POLLUTION CONTROL

There are four major Federal statutes and two Executive Orders (EOs) that govern air emissions from NOAA vessels. Each of these, with a brief overview of their primary objectives, is described below:

### 1.1.1 THE CLEAN AIR ACT (CAA) OF 1977

The purpose of the CAA (42 USCA 7401 et seq.) is to protect and enhance the quality of the nation's air. To achieve this objective, five regulatory programs and objectives were established by EPA:

National Ambient Air Quality Standards (NAAQS)

New Source Performance Standards (NSPS)

National Emission Standards for Hazardous Air Pollutants (NESHAP)

Federal permitting requirements (New Source Review (NSR) and Prevention of Significant Deterioration (PSD))

State Implementation Plans (SIP) program (State plans to attain and maintain NAAQS)

### 1.1.2 THE CLEAN AIR ACT AMENDMENTS (CAAA) OF 1990

This Act, Public Law (PL) 101-549 (42 U.S. Code (USC) 7401-7671q), revised and added to the scope of the CAA.

The purposes of the CAAA are to:

Protect and enhance the quality of the nation's air resources so as to promote the public health and welfare and the productivity of its population;

Initiate and accelerate a national research and development program to achieve the prevention and control of air pollution;

Provide technical and financial assistance to State and local governments regarding the development and execution of their air pollution prevention and control efforts;

Encourage and assist the development and operation of regional air pollution prevention and control programs (42 USC 7401(b));

Achieve a substantial reduction in emission of hazardous air pollutants from area sources and an equivalent reduction in the public health risks associated with such sources, including a reduction of not less than 75 percent in the incidence of cancer attributable to emissions from such sources (42 USC 7412(k)(1));

Reduce the adverse effects of acid deposition through reductions in annual emissions of $SO_2$ from 1980 emission levels, and of $NO_x$ emissions from 1980 emission levels in the 48 contiguous States and the District of Columbia and to bring about such reductions by requiring affected sources to comply with prescribed emission limitations by specified deadlines. Limitations may be met through alternative methods of compliance provided by an emission allocation and transfer system; and

Encourage energy conservation, use of renewable and clean alternative technologies, and pollution prevention as a long-range strategy, consistent with the provisions of this Act, for reducing air pollution and other adverse impacts of energy production and use (42 USC 7651(b)).

Each department, agency, and instrument of the executive, legislative, and judicial branches of the Federal Government, and each officer, agent, or employee of such a unit, must comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions

respecting the control and abatement of air pollution in the same manner, and to the same extent as any nongovernment entity. This applies to:

> Any requirement whether substantive or procedural (including record keeping, reporting, and emission);
>
> Any requirement to pay a fee or charge imposed by any State or local agency to defray the costs of its air pollution regulatory program;
>
> The exercise of any Federal, State, or local administrative authority; and
>
> Any process and sanction, whether enforced in Federal, State, or local courts, or in any other manner (42 USC 7418(a)).

Each department, agency, or instrument of the Federal Government must not engage in support of in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to an implementation plan after it has been approved or passed under this Act. Any Federal agency may not approve, accept, or fund any transportation plan, program or project unless such plan, program, or project has been found to conform to any applicable implementation plan in effect (42 USC 7506(c)(1)(2)).

### 1.1.3 THE TOXIC SUBSTANCES CONTROL ACT (TSCA)

This act, as last amended in 1986 (15 USC 2601-2671), is the Federal legislation that deals with the control of toxic substances. The act consists of three subchapters: one regulates the control of toxic substances, another governs asbestos hazard emergency response, and the third subchapter regulates indoor radon abatement. The policy developed in TSCA on chemical substances is as follows (15 USC 2601(b)):

> Adequate data should be developed with respect to the effect of chemical substances and mixtures on health and the environment, and the development of such data should be the responsibility of those who manufacture and those who process such chemical substances and mixtures.
>
> Adequate authority should exist to regulate chemical substances and mixtures which present an unreasonable risk of injury to health or the environment and to take action regarding chemical substances and mixtures.
>
> Authority over chemical substances and mixtures should be exercised in such a manner as not to impede unduly or create unnecessary economic barriers to technological innovation while fulfilling the primary purpose of this Act to assure that such innovation and commerce in such chemical substances and mixtures do not present an unreasonable risk of injury to health or to the environment.

Upon request by the EPA, each Federal department and agency is authorized to:

> Make its services, personnel, and facilities available (with or without reimbursement) to the EPA to assist the EPA in the administration of this Act; and

Furnish the EPA with information, data, estimates, and statistics, and allow the EPA access to all information in its possession as the EPA may reasonably determine to be necessary for the administration of this Act (15 USC 2625(a)).

Under TSCA, the national long-term goal of the United States with respect to radon levels in buildings is that the air within buildings in the United States should be as free of radon as the ambient air outside of buildings (15 USC 2661). The head of each Federal department or agency that owns a Federal building must conduct a study for the purpose of determining the extent of radon contamination in such buildings. Such study must include, in the case of a Federal building using a non-public water source (such as a well or other ground water), radon contamination of the water. Such a study must be based on design criteria specified by the EPA (15 USC 2669(a)(c)(e)).

### 1.1.4 HAZARDOUS MATERIALS TRANSPORTATION ACT

This Act was amended in 1978 to regulate the transport of asbestos materials. The regulations are contained in 49 CFR 172-177. In particular 49 CFR 177 requires that asbestos must be loaded, handled, and unloaded in a manner that will minimize occupational exposure to airborne asbestos. Asbestos wastes which are transported for disposal at a landfill or other disposal facility must meet all applicable requirements.

### 1.1.5 EXECUTIVE ORDER (EO) 12088, FEDERAL COMPLIANCE WITH POLLUTION STANDARDS

This EO, dated 13 October 1978, requires Federally owned and operated facilities to comply with applicable Federal, State, and local pollution control standards. It makes the head of each executive agency responsible for seeing that the agencies, facilities, programs, and activities it funds meet applicable Federal, State, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

### 1.1.6 EXECUTIVE ORDER (EO) 12873, FEDERAL ACQUISITION, RECYCLING, AND WASTE PREVENTION

This EO, dated 20 October 1993, mandates waste prevention and recycling as part of an agency's daily operations. It requires each agency to set a goal for solid waste prevention and a goal for recycling to be achieved by 1995. Agencies are also required to set goals for increasing the procurement of recycled and other environmentally preferable products.

## 1.2 STATE AND LOCAL REGULATIONS RELATED TO AIR POLLUTION CONTROL

The primary mechanisms regulating air pollutant emissions are the State or Air Quality Control Region (AQCR) regulations. These regulations will normally follow the Federal guidelines for State programs and will have many similar features. However, depending on the type and degree of air pollutant problems within the State/region, the individual regulations will vary. As an example, photochemical oxidant (ozone) problems are widespread in California and therefore the individual

AQCRs in that State have stringent VOC emission requirements. The State of North Dakota has no such problem and therefore has fewer and less stringent VOC regulations.

NSPSs are established for particular pollutants in industrial categories based upon adequately demonstrated control technology. A permit is normally required for new, expanded, or modified sources of air pollutants.

Some State regulations may apply directly to NOAA vessels and their operations without requiring a permit. At a minimum, State regulations should be reviewed for the following activities:

Fugitive particulate emissions such as from sandblasting or blowing boiler tubes

Emissions (e.g., $SO_2$ and $NO_X$) and emission control requirements for the operation of fossil fuel-fired steam and internal combustion machinery

Spray painting of the vessel and onboard equipment

Toxic air pollutants

Vapor control requirements for fuel transfer operations

Prescribed burning in an onboard incinerator

Many State and local governments have enacted standards more stringent than the Federal requirements concerning certification of asbestos workers and disposal of asbestos waste. If the facility is engaging in asbestos removal or disposal, contact the appropriate State and local agencies.

## 1.3 KEY COMPLIANCE REQUIREMENTS RELATED TO AIR POLLUTION CONTROL

The Federal, State and local requirements related to air pollution can affect operations of NOAA Corps vessels both while in port and while at sea. SIPs implemented under the CAAA would be applicable in port, while other major requirements would apply regardless of location. A brief summary of major compliance requirements is presented below.

### 1.3.1 STATE IMPLEMENTATION PLANS (SIP)

The CAA required each State to develop a SIP that would provide for implementation, maintenance, and enforcement of the primary and secondary ambient air quality standards. Title I of the 1990 CAAA requires States to upgrade and submit modified SIPs particularly for ozone and particulate matter 10 microns or less ($PM_{10}$) nonattainment areas. Many states also included requirements directed at the Prevention of Significant Deterioration (PSD) of air quality in areas already meeting the air quality standards. States that did not develop their own more stringent PSD regulations are subject to the Federal program defined in 40 CFR 52.21. The individual states were provided an opportunity to establish air quality standards for the criteria pollutants that are more stringent than the Federal standards and also to establish air quality standards for substances not listed as Federal criteria pollutants.

### 1.3.2 CHLOROFLUOROCARBONS (CFC) AND HALONS

To protect the ozone, no person repairing or servicing a refrigeration or air conditioning system for payment can service the system in any way that affects the refrigerant unless they have been trained and certified and are using approved equipment. Additionally, persons who maintain, service, or repair these systems are required to be certified through an approved technician certification program. Regulations also specify that CFC recycling equipment meets certain standards and that disposal of CFCs be accomplished by certified facilities. Aboard NOAA vessels, CFC and hydrochlorofluorocarbon (HCFC) use, recycling and replacement and the repair, replacement and disposal of CFC and HCFC equipment are specified in NOAA Corps Instruction 9516.

### 1.3.3 REPAIR AND REMOVAL OF ASBESTOS

Asbestos repair and removal aboard ship must be accomplished in accordance with 40 CFR 61.140, 61.141, and 61.145 and NOAA Corps Instruction 5100.1B which specifies procedures for repair, removal, replacement and disposal of asbestos on board NOAA vessels and sets forth training and recordkeeping requirements. Procedures are further amplified in Supplement #10 of the NOAA Fleet Hazardous Materials and Hazardous Waste Manual.

### 1.3.4 ASBESTOS DISPOSAL

Asbestos-containing waste must be wetted or bagged to prevent emissions to the air. Asbestos waste has to be disposed of in landfills that have been approved for the acceptance of asbestos-containing waste (40 CFR 61.150, 61.151, and 61.154). NOAA Corps vessels are required to submit an annual report on asbestos control activities by 1 October of each year.

## 1.4 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable International, Federal, state, local and agency requirements. The topics addressed in the audit will vary slightly depending on specific conditions and activities on the ship. Table 4 presents guidance for the protocol checklist related to air pollution control. Table 5 functions as the protocol checklist for this portion of the audit.

As part of the audit, the team must review appropriate records and inspect physical locations on the vessel. Section 1.4.1 lists records to review related to air pollution control, and Section 1.4.2 lists the physical features to inspect on the vessel.

*Table 4. Guidance on Air Pollution Control Checklist*

| TYPE OF FACILITY, ITEM OR ACTIVITY | REFER TO CHECKLIST ITEMS | REFER TO PAGE NUMBERS |
|---|---|---|
| All Vessels | A.1 through A.2<br>A.3 | 1-7 to 1-8 |
| CFCs and Halons<br>Purchasing/Procurement<br>Repair/Recycling | <br>A.4 through A.5<br>A.6 through A.7 | <br>1-8 to 1-9 |
| Asbestos Management<br>Repair and Renovation of Asbestos-Containing Structures<br>Asbestos Personnel Training<br>Asbestos Disposal | <br>A.8 through A.13<br><br>A.14<br>A.15 | <br>1-9 to 1-10 |

*Table 5. Checklist for Air Pollution Control*

| REGULATORY REQUIREMENTS | REVIEWER CHECKS: |
|---|---|
| **All Facilities** | |
| A.1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/identifying information as the citation.) | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements, or equivalent State enforcement actions.<br><br>For these open items, indicate what corrective action is planned and milestones established to correct problems. |
| A.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if any new regulations concerning air quality have been issued since the finalization of the manual. If so, annotate checklist to include new standards.<br><br>Determine if the vessel has activities or facilities which are Federally regulated, but not addressed in this checklist.<br><br>Verify that the vessel is in compliance with all applicable and newly-issued regulations. |

## *Table 5. Checklist for Air Pollution Control*

| *REGULATORY REQUIREMENTS* | *REVIEWER CHECKS:* |
|---|---|
| A.3. Vessels are required to comply with State and local air quality regulations (42 U.S.C. 7418(a)). | Verify that the vessel is complying with State and local air quality requirements.<br><br>Verify that the vessel is operating according to any permits issued by the State or local agencies.<br><br>***NOTE:*** Issues typically regulated by State and local agencies include:<br>- Air pollution episode standby plans<br>- Placement of control devices on fuel-burning sources<br>- Incinerators with less than 45 metric tons/day (50 tons/day) heat input<br>- Incineration of medical, pathological, and infectious waste<br>- Solvent metal cleaners such as degreasers and cold cleaners<br>- Fugitive particulate emissions from hull maintenance (sandblasting and spray painting)<br>- Toxic air pollutants |
| **CFCs and Halons** | |
| ***Purchasing/Procurement*** | |
| A.4. Vessels are required to comply with restrictions concerning the use of CFC and halon substitutes (40 CFR 82.174(b) through 82.174(d) and NC Instruction 9516). | Verify that no personnel on the vessel use a substitute which they know, or have reason to know, was manufactured, processed, or imported in violation of Federal regulations.<br><br>Verify that when a substitute is used, it is an acceptable substitute (HFC-134a, MP-66 or MP-39) and is used according to the use restrictions outlined in NC Inst. 9516.<br><br>Verify that unacceptable substitutes are not used. |
| A.5. As of 1 January 2015 the use of Class II substances is forbidden except in certain situations (42 USC 7671d(a)).<br><br>NC Instruction 9516 requires that plans for replacing CFCs used as refrigerants be in place by 1 January 1996. | Verify that a program is underway to eliminate the use of Class II substances unless:<br>- The substance has been reused or recycled<br>- It is used and entirely consumed (except for trace quantities) in the production of other chemicals<br>- It is used as a refrigerant in appliances manufactured prior to 1 January 2020.<br><br>Verify that a plan for replacing CFC and HCFC refrigerants has been prepared either by the ship or the servicing Marine Center and is being implemented in accordance with Section 7 of NC Inst. 9615. |

## *Table 5. Checklist for Air Pollution Control*

| *REGULATORY REQUIREMENTS* | *REVIEWER CHECKS:* |
|---|---|
| ***Repair/Recycling*** | |
| A.6. Persons who maintain, service, or repair refrigeration and air conditioning systems are required to be certified through an approved technician certification program (40 CFR 82.161 and NC Inst. 9516). | Verify that personnel maintaining, servicing and repairing refrigeration and air conditioning equipment on the vessel have received technician certification.<br><br>- Verify that training has been obtained and records are kept for ship's personnel who engage in refrigeration repair and recycling activities.<br><br>- Verify that outside contractors performing repair and recycling aboard ship are properly certified and have provided documentation to this effect to the Chief Engineer. |
| A.7. No person can open refrigeration and air conditioning systems or appliances for maintenance, service, or repair or dispose of refrigeration and air conditioning equipment or appliances unless specific requirements are met (40 CFR 150, 40 CFR 82.154, 82.156, and 82.158; and NC Inst. 9615) | Determine if the vessels maintaining, servicing, repairing, or disposing of systems and appliances containing refrigerants verify the following:<br><br>- CFC and HCFC substances are not being vented to the atmosphere.<br><br>- The required recovery and recycling practices outlined in 40 CFR 82.156 are met.<br><br>- Equipment is used that is certified in accordance with 40 CFR 82.158 and Section 6 of NC Instruction 9615.<br><br>NOTE:<br>- De minimis releases that are associated with good faith attempts to recycle or recover refrigerants are not considered a violation.<br>- These requirements apply to the following:<br>  - any person servicing, maintaining, or repairing systems and appliances<br>  - persons disposing of appliances<br>  - refrigerant reclaimers, appliance owners, recycling and recovery equipment. |
| **Asbestos Management** | |
| ***Renovation and Repair of Asbestos-Containing Areas and Equipment*** | |
| A.8. NC Instruction 5100.1b requires that any asbestos material that appears to be damaged or deteriorated to the point where the emission of airborne particles is possible shall be removed, repaired, encapsulated, or replaced with acceptable nonasbestos material. | Verify by physical inspection that there is no damaged or deteriorated asbestos on board the vessel. |
| A.9. NC Instruction 5100.1B requires that any asbestos material removed to make way for renovations, repairs and maintenance work be replaced by an acceptable nonasbestos material. | Verify through records inspection that asbestos material that has been removed to facilitate renovations and maintenance has been replaced with nonasbestos materials. |

## *Table 5. Checklist for Air Pollution Control*

| *REGULATORY REQUIREMENTS* | *REVIEWER CHECKS:* |
|---|---|
| A.10. NC Instruction 5100.1B requires that removal or repair of asbestos on board ship be conducted by a contractor and not by NOAA personnel, except in an emergency or casualty situation. | Verify through records inspection and interviews that no repair and removal of asbestos was conducted by NOAA Corps personnel except in emergency or casualty situations. |
| A.11. NC Instruction 5100.1B requires that any emergency asbestos removal and repair be conducted in accordance with Supplement #10 of the NOAA Fleet Hazardous Materials and Hazardous Waste Manual. | Verify through records inspection and interviews that sampling, monitoring, personnel safety, and disposal procedures have been followed in accordance with Supplement #10.<br><br>Check to ensure that air sampling data sheets, supervisor s checklist for asbestos work and report of asbestos work were properly completed and forwarded to the Marine Center, and that copies have been retained on board for 3 years. |
| A.12. NC Instruction 5100.1B requires that NOAA vessels have on board appropriate equipment for asbestos removal. | Verify that the vessel has on board the equipment listed in Appendix G of NC Instruction 5100.1B. |
| A.13. NC Instruction 5100.1B requires that by 1 October of each year, the vessel will submit to the Marine Center an annual report of asbestos control activities. | Verify that the asbestos control reports have been submitted as per Section 9-6.6 of NC Instruction 5100.1B. |
| ***Personnel Asbestos Training*** | |
| A.14. 40 CFR 61.145(c)(8) and NC Instruction 5100.1B require that personnel aboard NOAA vessels be properly trained in asbestos removal procedures. | For NOAA Class I and II vessels, verify that one officer, two engine room personnel, and medical technicians receive training in measures of personnel protection, removal and repair procedures, and air sampling techniques, at least once a year.<br><br>Verify that for all other vessels appropriate personnel receive similar training. |
| ***Asbestos Disposal*** | |
| A.15. Asbestos-containing waste materials are required to be disposed of properly (40 CFR 61.150(a) through 61.150(b)). | Verify that asbestos material removed during emergency repair has been disposed of in accordance with 40 CFR 61.150 and Supplement #10 of the NOAA Fleet Hazardous Materials and Hazardous Waste Manual. |

### 1.4.1 RECORDS TO REVIEW

State and local air pollution control regulations

Notices of Violations (NOVs) from regulatory authorities

NOAA Fleet Inspection Reports

Annual asbestos management plan

Supervisor s checklists for asbestos removal operations

Documentation of asbestos sampling and analytical results

Records of asbestos training program

Record of repair or renovation projects in the past three years that involved friable asbestos

Training and certification records for ship technicians who reclaim or recycle refrigerants

Vessel plans and drawings.

### 1.4.2 PHYSICAL FEATURES TO INSPECT

All air pollution sources (fuel burners, incinerators, VOC sources, etc.)

Pipe, spray-on, duct, and troweled cementitious insulation and boiler lagging

Ceiling and floor tiles.

Refrigeration and air conditioning equipment

Refrigerant recycling equipment

Asbestos handling equipment

## 1.5 SUMMARY OF CHANGES AND ISSUES

Under Records to Review, the CFCs Refrigeration Equipment Replacement Plan (required by NC Instruction 9615) and contractor refrigeration repair records have been added to the list.

During the audits of the various NOAA vessels it was noted that there were no formal plans for replacing CFC refrigerants as required by Section 7 of NC Instruction 9615. Most ships indicated that this plan was being developed by the Marine Centers, but the plans were never actually located. Efficiency indicates that these plans would best be prepared and held by the Atlantic Marine Center (AMC) and the Pacific Marine Center (PMC). Protocol Item A.5 should be modified as indicated.

The protocol items A.6 through A.12 are lengthy and somewhat academic in the context of an actual audit. The auditors were never able to actually observe refrigeration repair and recycling operations, and ship s engineering records do not include enough detail to verify evacuation procedures and limits by records check. It is therefore recommended that the section on refrigeration

repair/recycling (items A.6 through A.12) be abridged as indicated to focus on the training of personnel and availability of equipment if operations are conducted on board by ship s crew, and certification of contractors if repair/recycling is conducted while dockside by contractors. Specifically, it is recommended that A.9 through A.12 be deleted, and A.6 through A.8 be combined and modified as indicated to become revised A.6 and A.7.

No activities were noted in the course of the audits that would indicate that protocol item A.16 is applicable to NOAA ships. It is recommended that item A.16 be deleted.

An issue raised during the course of the audits was whether the requirements of NC Instruction 5100.1B, Section 9-6, including an up-to-date survey, constitute a satisfactory shipboard asbestos management program consistent with 29 CFR 1910.1001. The auditors reviewed 29 CFR 1910.1001 and also 29 CFR 1926.1101, which addresses asbestos abatement activities. In the auditor s opinion, asbestos management programs developed for shipboard use under the cited NC instructions would be consistent with OSHA requirements with the following exceptions. Shipboard personnel conducting asbestos abatement operations, including emergency repairs and removal, should be equivalently trained with requirements of 40 CFR 763 Subpart E, Appendix C. Further, shipboard abatement work practices and methods should comply with 29 CFR 1926.1101 Section (g). Finally, personal protective equipment used by shipboard personnel conducting asbestos abatement, including respiratory protection, should comply with 29 CFR 1926.1101 Sections H and I.

# 2.0 WATER POLLUTION CONTROL ENVIRONMENTAL COMPLIANCE PROTOCOL

This section includes regulations, responsibilities, and compliance requirements associated with wastewater discharge from vessels. Wastewater discharge can include any of the following:

Sanitary wastewater, graywater or ballast water discharge directly to the surrounding waters.

Sanitary wastewater or graywater discharge to a Publicly-Owned Treatment Works (POTW) or other treatment facilities

Runoff from the vessels hull, decks and superstructure related to cleaning and maintenance of the vessel.

All vessels have wastewater, graywater and ballast water discharge of this nature; therefore, this section will be applicable to all vessels.

Assessors are required to review State and local regulations to perform a comprehensive assessment.

## 2.1 INTERNATIONAL REGULATIONS AND GUIDELINES

MARPOL 73/78 Annex IV sets forth International Regulations for the Prevention of Pollution by Sewage from Ships. This Annex is not yet in force, but will eventually require that no vessel discharge sewage within four nautical miles of nearest land, and that vessels treat sewage in a MARPOL-compliant MSD before discharging between 4 and 12 nautical miles of nearest land. Annex IV requirements, when in force, will be more stringent than current U.S. requirements under 33 CFR 159. Pollution discharge restrictions under MARPOL 73/78 are listed in Table 1 in the Executive Summary.

## 2.2 FEDERAL LEGISLATION AND REGULATIONS

There are two Federal statutes, one EO, and one set of Federal regulations applicable to water pollution from NOAA vessels.

### 2.2.1 FEDERAL WATER POLLUTION CONTROL ACT

This Act, commonly known as the Clean Water Act (CWA), as amended 4 February 1987 (33 USC 1251-1387; PL 100-4), governs the control of water pollution in the nation. The objective of the act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Federal agencies are required to comply with all Federal, State, interstate, and local water pollution control requirements both substantively and procedurally (33 USC 1323(a)).

### 2.2.2 REFUSE ACT OF 1989, 33 USC 407

This Act was the first water pollution control legislation enacted in the United States. Although it focuses on the discharge of refuse that poses a hazard to navigation, it has been interpreted to cover a broad range of discharges into navigable waters.

### 2.2.3 EXECUTIVE ORDER (EO) 12088, FEDERAL COMPLIANCE WITH POLLUTION STANDARDS

This EO, dated 13 October 1978, requires Federally owned and operated facilities to comply with applicable Federal, State, and local pollution control standards. It makes the head of each executive agency responsible for seeing that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, State, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

### 2.2.4 MARINE SANITATION DEVICES (MSD), 33 CFR 159

This section of the Code of Federal Regulations prohibits the discharge of untreated sewage within 3 nautical miles of nearest land except when treated through an approved MSDs. It provides specifications for approved Type I, II, and II devices and the conditions for their use.

## 2.3 STATE AND LOCAL REGULATIONS

States normally have water pollution control regulations that govern discharges into State navigable waters. These regulations are generally consistent with Federal regulations but in some cases may be more stringent, particularly with respect to the designation of no discharge zones in coastal areas. Local entities (counties, cities and port authorities) may also have enforceable discharge limitations. State and port-specific discharge restrictions are listed in Table 6.

## 2.4 KEY COMPLIANCE REQUIREMENTS

Compliance with applicable requirements involves control of sewage treatment, sewage discharges, graywater discharges and ballast water exchanges.

### 2.4.1 MARINE SANITATION DEVICES

33 CFR 159 and NC Instruction 5100.1B require that sewage discharged from NOAA vessels within three nautical miles of nearest land be treated using an approved MSD. If the device was installed prior to January 31, 1978 it must be an approved type I device; if installed after January 31, 1978 it must be an approved Type II or Type III device. Replacement of inoperable MSDs must be made using a Type II or Type III device.

*Table 6. No-Discharge Zones Designated by the EPA Regional Administrators as of July 1, 1997*

| STATE | BODY OF WATER | STATUE CWA SECTION 312 | FEDERAL REGISTER NOTICE | DATE |
|---|---|---|---|---|
| California | Mission Bay | (F)(3) | 41 FR 34353 | 8-13-76 |
| California | Oceanside Harbor | (F)(3) | 41 FR 34353 | 8-13-76 |
| California | Dana Point Harbor | (F)(3) | 41 FR 34353 | 8-13-76 |
| California | Channel Islands Harbor | (F)(3) | 44 FR 26963 | 5-8-79 |
| California | Oxnard | (F)(3) | 44 FR 26963 | 5-8-79 |
| California | Avalon Bay Harbor | (F)(3) | 44 FR 26963 | 5-8-79 |
| California | Santa Catalina Island | (F)(3) | 44 FR 26963 | 5-8-79 |
| California | Newport Bays | (F)(3) | 41 FR 2274 | 1-15-76 |
| California | Sunset Bay | (F)(3) | 41 FR 2274 | 1-15-76 |
| California | Pacific Coast Highway Bridge | (F)(3) | 41 FR 2274 | 1-15-76 |
| California | Richardson Bay | (F)(3) | 52 FR 33282 | 9-2-87 |
| California | Huntington Harbor | (F)(3) | 41 FR 2274 | 1-15-76 |
| California/Nevada | Lake Tahoe | (F)(3) | 42 FR 59105 | 11-15-76 |
| Florida | Destin Harbor | (F)(3) | 53 FR 1678 | 1-21-88 |
| Massachusetts | West Port Harbor | (F)(3) | 59 FR 45677 | 9-2-94 |
| Massachusetts | Well Fleet | (F)(3) | 60 FR 30539 | 6-9-95 |
| Massachusetts | Waquoit Bay | (F)(3) | 59 FR 11271 | 3-10-94 |
| Massachusetts | Nantucket Island | (F)(3) | 57 FR 44379 | 9-25-92 |
| Massachusetts | Wareham Harbor | (F)(3) | 57 FR 2553 | 1-22-92 |
| Michigan | All | (F)(3) | 41 FR 2274 | 1-15-76 |
| Minnesota | Boundary Waters Canoe Area | (F)(4)A | 42 FR 43837 | 8-31-77 |
| Minnesota | Mississippi River | (F)(3) | 42 FR 33362 | 6-30-77 |
| Minnesota | St. Croix River | (F)(3) DENIAL | 61 FR 30868<br>42 FR 37844 | 6-18-96<br>7-25-77 |
| Missouri | All (except Mississippi River, Missouri River, part of Bull Shoals Lake) | (F)(3) | 40 FR 54462 | 11-24-75 |
| New Hampshire | All (except coastal waters) | (F)(3) | 40 FR 36797 | 8-22-75 |
| New Mexico | All | (F)(3) | 41 FR 17599 | 4-27-76 |

*Table 6. No-Discharge Zones Designated by the EPA Regional Administrators as of July 1, 1997*

| STATE | BODY OF WATER | STATUE CWA SECTION 312 | FEDERAL REGISTER NOTICE | DATE |
|---|---|---|---|---|
| New York | Lake Champlain | (F)(3) | 41 FR 24624 | 6-17-76 |
| New York | Lake George | (F)(3) | 41 FR 2668 | 1-19-76 |
| New York | Hudson River (part) | (F)(4)(B) | 60 FR 63941 | 12-13-95 |
| Rhode Island | Block Island | (F)(3) | 58 FR 31207 | 6-1-93 |
| Texas | 24 Freshwater bodies | (F)(3) | 42 FR 59776 | 11-21-77 |
| Vermont | All (including parts of Lake Champlain and Lake Memphremagog) | (F)(3) | 40 FR 42240 | 9-11-75 |
| Wisconsin | All (except Lake Superior, Mississippi River, part St. Croix River) | (F)(3) | 41 FR 11875 | 3-22-76 |

### 2.4.2 DISCHARGE TO TREATMENT FACILITIES

Vessels must not discharge into a treatment works any pollutant that would cause pass-through or interference. Vessels shall not introduce into a treatment works pollutants that create a fire or explosion hazard, cause corrosive structural damage, have a pH below 5.0, or are solid or viscous enough to cause obstructions. Vessels are required to notify the treatment works immediately of any discharge, including any slug loadings, that could cause problems to the treatment works (40 CFR 403.5 and 403.12(f)).

### 2.4.3 GRAYWATER DISCHARGE

Good marine practice requires that, where practical, sewage effluent and graywater should be segregated to reduce the volume of effluent that must be treated. Such graywater can generally be discharged overboard without being treated, except in certain port areas where State and local regulations have established "no discharge" zones. These are listed in Table 6.

### 2.4.4 BALLAST WATER DISCHARGE

The Marine Environmental Protection Committee of the IMO has developed Guidelines for Preventing the Introduction of Unwanted Aquatic Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges (Resolution A.774(18) adopted 4 November 1993). These guidelines recommend ballast exchange in at least 2000 meters of water (deep ocean) prior to entering port to remove non-indigenous organisms picked up in ballast water from previously-visited ports. The U.S. Coast Guard has adopted these guidelines as voluntary standards. In addition, 33 CFR 151.1500 requires deep ocean ballast water exchange (or equivalent control measures) for vessels entering the Great Lakes and Upper Hudson River. In addition, as a matter of good marine practice, both the Coast Guard and Navy have adopted the procedure of exchanging ballast water outside the 12 nm limit prior to entering port when returning from international voyages involving port calls in foreign ports. This same practice should be followed by NOAA vessels. Future regulations based on the National Invasive Species Act of 1996 will make such practices mandatory.

## 2.5 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable International, Federal, state, local and agency requirements. The topics addressed in the audit will vary slightly depending on specific conditions and activities on the ship. Table 7 presents guidance for the protocol checklist related to water pollution control. Table 8 functions as the protocol checklist for this portion of the audit.

As part of the audit, the team must review appropriate records and inspect physical locations on the vessel. Section 2.5.1 lists records to review related to water pollution control, and Section 2.5.2 lists the physical features to inspect on the vessel.

## *Table 7. Guidance on Water Pollution Control Checklist*

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO* | |
|---|---|---|
| | *CHECKLIST ITEMS* | *PAGE NUMBERS* |
| All Vessels | WP.1 through WP.3 | 2-6 to 2-7 |
| Wastewater Discharges to Surrounding Waters | WP.4 through WP.6 | 2-7 |
| Discharges to POTWs/FOTWs | WP.7 through WP.8 | 2-8 |
| Ballast Water Discharges | WP. 9 | 2-9 |

## *Table 8. Checklist for Water Pollution Control*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **All Vessels** | |
| WP.1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/ identifying information as the citation.) | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements or equivalent State enforcement actions.<br><br>For those open items, indicate what corrective action is planned and milestones accomplished to correct problems. |
| WP.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if the vessel has activities or facilities that are Federally regulated, but not addressed in this checklist.<br><br>Determine if the vessel operates in no discharge zones as prescribed under 40 CFR 140. If so, ensure that the vessel's crew is aware of and is complying with the no discharge provisions.<br><br>Verify that the vessel is in compliance with all applicable and newly issued regulations. |

## *Table 8. Checklist for Water Pollution Control*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| WP.3. Vessels are required to abide by State and local wastewater regulations (EO 12088, Sect 1-1). | Verify that the vessel is abiding by State and local water quality requirements.<br><br>Verify that the vessel is operating according to any permits issued by the State or local agencies.<br><br>***NOTE:*** Issues typically regulated by State and local agencies include:<br>- Nonpoint sources<br>- No discharge zones<br>- Wastewater<br>- Stormwater discharges. |
| **Wastewater Discharges to Surrounding Waters** | |
| WP.4. 33 CFR 159 and NC Instruction 5100.1B require that no vessel discharge sewage within 3 nautical miles of nearest land unless the sewage is treated using an approved MSD. | Verify that the ship has on board a Type I, II, or III MSD. If the current MSD was installed after January 31, 1978 it must be Type II or III.<br><br>Check to ensure that MSDs and holding tanks are routinely inspected.<br><br>Check to see if MSD effluent is routinely monitored, sampled and tested, and that records are maintained. (This requirement deleted)<br><br>Verify that procedures have been established for reporting accidental or emergency discharge of MSDs or holding tanks in areas where discharge is otherwise prohibited. |
| WP.5. Good marine practice requires that, where practical, sewage effluent and graywater should be segregated to reduce the volume of effluent that must be treated. | Check to see that, where practical, sewage effluent and graywater are segregated to reduce the volume of effluent. |
| WP.6. Even though not covered by NPDES permits, nonsewage overboard discharges and runoff discharges from the vessel should be uncontaminated and periodic surveillance of these discharges should be completed (MP). | Determine which drains and scuppers aboard the vessel may lead to overboard discharge of water during routine hull maintenance and cleaning operations.<br><br>Determine if there is evidence of contamination (oil sheen, discoloration, etc.) by physical inspection of nonsewage overboard discharges and deck runoff discharge sites.<br><br>Ensure that any sinks that drain directly overboard are clearly marked as such, and that placards are in place warning against discharge of oil and hazardous substances into these sinks.<br><br>Determine if there is evidence of contaminated waste streams discharging to deck drains connected to the overboard discharge system. Waste of specific concern includes:<br>- Paint and solvents<br>- Paint chips<br>- Oily wastes |

## *Table 8. Checklist for Water Pollution Control*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Discharges to POTWs and FOTWs** | |
| WP.7. Vessels must not discharge into a POTW/FOTW any substance that may cause pollution, a health or safety hazard, or impede the operation of the POTW/FOTW (40 CFR 403.5(a) and 403.5(c)). | Determine the following:<br>- What are the potential discharge points on the vessel that lead to POTWs?<br>- What do personnel pour down the drains leading to the treatment works?<br>- What types of materials are located in areas where spills may reach the drains to the treatment works?<br><br>Determine which drains are connected to the marine sanitation system draining to a POTW/FOTW and possible pollutants entering these drains.<br><br>Verify that the vessel is not discharging to a POTW/FOTW any of the following substances:<br><br>- Pollutants that create a fire or explosion hazard in the POTW/FOTW, including but not limited to waste streams with a closed cup flashpoint of less than 140°F (60°C)<br>- Pollutants that will cause corrosive structural damage to the POTW/FOTW<br>- Substances with a pH below 5.0 released<br>- Substances of a solid or viscous nature in amounts that will cause obstruction to the flow. Examples are:<br>-- Fish-cleaning stations<br>-- Pieces of metals, rubber, and wood from shops<br>-- Sand and sediment<br>- Pollutants, including oxygen-demand pollutants, released at a flow rate or concentration that will cause interference with the POTW/FOTW.<br>- Petroleum, oil, nonbiodegradable cutting oil, or products of mineral oil origin that would result in a pass-through or interference (specifically check maintenance areas and oil/water separators)<br>- Pollutants that would result in the presence of toxic gases, vapors, or fumes within the POTW/FOTW in quantities that would cause acute worker health and safety problems. |
| WP.8. Vessels are required to notify the POTW/FOTW immediately of any discharge, including slug loading, that could cause problems to the POTW/FOTW (40 CFR 403.12(f)). | Verify that personnel at the facility are aware of the need to notify the POTW/FOTW of any discharge that would cause problems. (See discharges listed in WP.7 above). |

| *Table 8. Checklist for Water Pollution Control* | |
|---|---|
| ***REGULATORY REQUIREMENTS:*** | ***REVIEWER CHECKS:*** |
| **Ballast Water Discharges** | |
| WP.9. The IMO has developed guidelines for the control of ship ballast water to prevent the introduction of unwanted aquatic organisms and pathogenic organisms. | Verify that ballast water taken on in potentially-polluted areas and foreign ports is discharged and the ballast tanks flushed and refilled. The ballast exchange should be accomplished outside of 12 nautical miles from shore when returning from international voyages involving port calls in foreign ports.<br><br>Verify that ballast exchange operations are properly recorded in the ship s log. |

### 2.5.1 RECORDS TO REVIEW

Ship s Log and Engineering Log to determine date and location of discharges from MSD or holding tank

Discharge monitoring reports for the past year

Reports of any unauthorized discharges

All notices of noncompliance

All notices of violations

State or Federal inspection reports

Repair/maintenance records for MSDs and alarms

Vessel drawings

### 2.5.2 PHYSICAL FEATURES TO INSPECT

Overboard discharge points

MSDs

## 2.6 SUMMARY OF CHANGES AND ISSUES

Under Records for Review, the entry for discharge monitoring records has been replaced by ship s deck and engineering log (there are no separate discharge monitoring records ).

Under Protocol item WP. 4, there is a requirement to check to see if the MSD effluent is monitored, sampled and tested, and records are maintained. No such monitoring is being conducted in the NOAA Fleet, and is not specifically required by current regulations and directives. It is recommended that this requirement be deleted.

Under Protocol item WP.6, language has been added to address discharges from sinks that drain directly overboard.

Protocol items WP.7 and WP.8 have been combined. It was observed during the audits that discharges to POTW/Federally-Owned Treatment Works (FOTW) is not an area of major concern for NOAA Ships.

# 3.0 NONHAZARDOUS WASTE MANAGEMENT ENVIRONMENTAL COMPLIANCE PROTOCOL

This section addresses the collection, storage, and disposal of solid waste aboard vessels. Solid waste includes nonhazardous trash, rubbish, garbage, bulky wastes, liquids, or sludges. Recycling and resource recovery activities are also covered in this section because they are considered a form of solid waste management. The handling and disposal of asbestos waste materials are addressed in the Air Pollution Control protocol (Section 2).

## 3.1 INTERNATIONAL REGULATIONS AND GUIDELINES

MARPOL 73/78, Annex V, addresses the discharge of shipboard solid waste at sea. Annex V establishes three main requirements:

No plastic discharges at sea worldwide.

Outside of special areas, no solid waste may be discharged from ships within 3 nautical miles (nm) from shore. Comminuted food waste may be discharged between 3 and 12 nm from shore. Non-floating solid waste may be discharged beyond 12 nm from shore. Floating waste may be discharged beyond 25 nm from shore.

Under MARPOL, certain geographic areas of the world are designated as Special Areas, which because of their oceanographic and ecological characteristics, require more stringent pollution discharge restrictions than is normally required under MARPOL. There are currently eight such areas under MARPOL, including the Mediterranean, North Sea, Baltic Sea, Black Sea, Red Sea, Persian Gulf Area, Antarctic area, and Wider Caribbean as indicated in Figure 1. Although these areas have been formally designated under MARPOL, the upgraded pollution discharge restrictions are only in effect (or in force ) in three: the North Sea, Baltic Sea, and Antarctic. These restrictions will come into effect in other areas over time as adequate reception facilities become available in each area. Within special areas that are in effect, food waste is the only solid waste discharge authorized. Food waste may be discharged beyond 12 nm from shore.

The applicability of MARPOL to NOAA Ships deserves some mention. Article 3 (3) of MARPOL 73/78 states that the Convention does not apply to any warship, naval auxiliary, or other ship owned or operated by a State and used, for the time being, only on government non-commercial service. However, Article 3 (3) goes on to say that each Party to the Convention should operate these ships in a manner consistent, so far as is reasonable and practicable, with the present Convention. In becoming party to Annex V of MARPOL, through the 1987 Amendment to the APPS, Congress did not adopt the reasonable and practicable requirement for U.S. warships, but instead looked for full compliance with all of Annex V by 1994. In 1994 legislation amending AAPS (National Defense Authorization Act), Congress extended the deadline for full compliance to the year 2000 for surface ships. The Navy is proceeding aggressively with Annex V compliance (DoD Record of Decision dated 31 January 1997). It is clear that Congress wishes full compliance with MAROL by public vessels, and that the Navy is moving in this direction. As a matter of policy,

NOAA ships should therefore comply with all applicable provisions of MARPOL, unless compliance would be clearly unreasonable and impractical, and this can be clearly substantiated.

MARPOL Annex V has been implemented for U.S. commercial vessels registered in the United States under 33 CFR 151.51-151.77. NOAA ships, as public vessels, are formally excluded from these requirements under 33 CFR 151.51 (b)(1).

Two key documentation requirements under MARPOL V dealing with the handling and disposition of shipboard solid waste are the ship s Garbage Management Plan and the Garbage Record Book. Guidelines for preparation of the Garbage Management Plan are provided in Annex 6 to MARPOL, Resolution MEPC.70(38), adopted on 10 July 1996. Annex 6 specifies that the Garbage Management Plan will address the following:

1) Designation of the person in charge of carrying out the plan
2) Procedures for collecting garbage
3) Procedures for processing garbage
4) Procedures for storing garbage
5) Procedures for disposing of garbage

Guidelines for preparation of the Garbage Record Book are provided in Annex 13 to MARPOL V, Resolution MEPC.65(37), adopted on 14 September 1995. Annex 13 also provides a specified format for the ship s Garbage Record Book, to be included as part of the ship s official logbook or otherwise retained on board and available for inspection. It constitutes an official legal document which shall be admissible in any judicial proceedings as evidence of the facts stated in the entry.

The provisions for Garbage Management Plans and Garbage Record Books apply to vessels greater than 400 tons. They became effective on 1 July 1997, as specified in the revised Regulation 9 of the 1994/1995 Amendments to MARPOL V, and are effective for all new vessels on that date. For existing vessels (constructed before 1 July 1997), they become effective on 1 July 1998.

## 3.2 FEDERAL LEGISLATION AND REGULATIONS

Federal requirements related to nonhazardous waste management are specified by six environmental laws (with their associated regulations), one health and safety law, one set of regulations designed to protect agriculture and two EOs. The overall objectives of each of these are described below.

### 3.2.1 RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) OF 1976

This is the Federal law which governs the disposal of solid waste. Subtitle D of this Act, as last amended in November 1984 (Public Law (P.L.) 98-616; 42 U.S. Code (USC) 6941-6949a), establishes Federal standards and requirements for State and regional authorities respecting solid waste disposal. The objectives of this subtitle are to assist in developing and encouraging methods for the disposal of solid waste which are environmentally sound and which maximize the utilization of valuable resources recoverable from solid waste. The objectives are to be achieved through Federal, technical, and financial assistance to States and regional authorities for comprehensive planning (42 USC 6941).

### 3.2.2 THE SOLID WASTE DISPOSAL ACT OF 1965, AS AMENDED

This Act requires that Federal facilities comply with all Federal, State, interstate, and local requirements concerning the disposal and management of solid wastes. These requirements include permitting, licensing, and reporting. Regulations codified at 40 CFR 243 expressly exclude ships at sea from the definition of a Federal facility (40 CFR 243.101(K)).

### 3.2.3 ACT TO PREVENT POLLUTION FROM SHIPS (APPS)

APPS, as amended by the Marine Plastics Pollution Research and Control Act of 1987 and by the National Defense Authorization Act for FY 1994, implements MARPOL Annex V for the U.S. APPS requires that U.S. public vessels fully comply with MARPOL Annex V requirements by the established deadlines: Surface ships must comply with the plastic discharge prohibition not later than 1 January 1999, and with special area limitations by 1 January 2001. Once surface ships are equipped with plastic processors, they must immediately comply with the plastic discharge prohibition.

### 3.2.4 OCEAN DUMPING ACT (ODA)

ODA prohibits U.S. entities from transporting material from the U.S., or from any other place, for the purpose of dumping it into ocean waters, unless a permit has been obtained from the U.S. EPA. However, ODA does not apply to wastes generated aboard ships while underway.

### 3.2.5 CLEAN WATER ACT (CWA)

The CWA Prohibits the discharge of pollutants (including solid waste) from ships into waters of the U.S. within 3 nm of shore. (Discharge of solid waste beyond 3 nm is regulated under APPS.)

### 3.2.6 U.S. PUBLIC VESSEL MEDICAL WASTE ANTI-DUMPING ACT

This act prohibits public vessels from dumping medical waste into the ocean waters during peacetime, except under emergency conditions.

### 3.2.7 THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

The general purpose of this Act is to assure, as much as possible, that every individual working in the United States has safe and healthful working conditions. The control of medical waste is one aspect of assuring safe and healthy working conditions.

### 3.2.8 USDA REGULATIONS

Various statutes authorize the U.S. Department of Agriculture (USDA) to regulate the handling of foreign food and foreign source garbage entering the U.S., via ship or aircraft. NOAA ships must comply with these regulations. Specific regulations regarding USDA-regulated wastes are contained in 7 CFR 330.

### 3.2.9 EO 12088, FEDERAL COMPLIANCE WITH POLLUTION STANDARDS

This EO, dated 13 October 1978, requires Federally owned and operated facilities to comply with applicable Federal, State, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, State, and local environmental requirements or for correcting situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

### 3.2.10 EO 12873, FEDERAL AGENCY RECYCLING AND THE COUNCIL ON FEDERAL RECYCLING AND PROCUREMENT POLICY

This EO, dated 31 October 1991, requires Federal agencies to promote cost-effective waste reduction and recycling of reusable materials from wastes generated at their activities. Federal agencies are required to initiate a program to promote cost-effective waste reduction through: (1) practices that reduce waste generation, and (2) the recycling of materials such as paper, plastic metals, glass, used oil, lead acid batteries, and tires and the composting of organic materials such as yard waste.

## 3.3 STATE AND LOCAL REGULATIONS

The Federal Government sets minimum national standards for municipal solid waste landfilling in 40 CFR Part 258, but State and local govemments are responsible for implementing and enforcing waste programs. States are required to develop their own programs based on the Federal regulations. Most states and municipalities have already developed their own regulations governing the permitting, licensing, and operations of landfills, incinerators, and source separation/recycling programs.

States are required to incorporate revised criteria for Municipal Solid Waste Landfills (MSWL) into their permit programs and to gain approval from EPA. States that apply for and receive EPA

approval of their programs have the opportunity to provide a lot of flexibility in implementing the regulations. This flexibility allows states to take local conditions into account and gives them the authority to alter some of the requirements. Evaluators will need to determine if a state has been granted approval for the 40 CFR Part 258 Program in order to accurately assess compliance with the criteria. Many states have also specified categories of special wastes which cannot be placed in landfills or dumps, or may only be disposed of under specific circumstances.

## 3.4 KEY COMPLIANCE REQUIREMENTS

Compliance requirements related to nonhazardous waste focus on management of solid waste and solid waste storage containers, medical waste and medical waste storage containers, and recycled materials. This section presents brief summaries of requirements. Table 9 provides guidance for the protocol checklist, and Table 10 lists nonhazardous waste management items to investigate during an audit.

### 3.4.1 STORAGE/COLLECTION OF SOLID WASTE

While in port for extended periods, vessels should comply with the following storage/collection requirements unless using shoreside storage and collection facilities. Vessels are required to store all solid wastes and materials separated for recycling so that it does not cause a fire, safety, or health hazard. All vessels are required to operate their collection systems in a manner to protect the health and safety of personnel associated with the operation. All collection equipment is required to have a suitable cover to prevent spillage, and the equipment is required to be constructed, operated, and maintained adequately. All vessels are required to collect solid wastes or materials separated for recycling, according to a certain schedule, and in a safe efficient manner (40 CFR 243.200-1, 243.201-1, 243.202-1(a) through 243.202-1(c), 243.203-1, 243.204-1).

### 3.4.2 SOLID WASTE CONTAINERS

Vessel personnel should be periodically informed about materials that are prohibited from disposal in solid waste receptacles (MP).

### 3.4.3 MEDICAL WASTE MANAGEMENT

Contaminated reusable sharps and other regulated wastes are required to be placed in puncture resistant, color-coded, leakproof containers as soon as possible after use until properly reprocessed. Specimens of blood or other potentially-infectious material are required to be placed in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping, and specific labeling and handling requirements are to be followed (29 CFR 1910.1030(d)).

### 3.4.4 MEDICAL WASTE CONTAINERS

All bins, cans, and other receptacles intended for reuse that have the likelihood of becoming contaminated with blood or other potentially-infectious materials are required to be inspected and decontaminated on a regularly-scheduled basis. Labels affixed to containers of regulated wastes, refrigerators and freezers containing blood, and other containers used to store, transport, or ship blood or other potentially-infectious materials must meet specific standards, which includes the attachment and display of the biohazard symbol, and the use of fluorescent orange coloring with contrasting-colored lettering and symbols (29 CFR 1910.1030(d)(4)(ii)(c) and 1910.1030(g)(1)(I)).

### 3.4.5 RECYCLING OF SOLID WASTE

Vessels should establish a program to implement State or local recycling requirements and to reduce the volume of solid waste materials at the source whenever practical (40 CFR 246.200-1 and 246.202-1, EO 12873).

## 3.5 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable international, Federal, State, local and agency requirements. The topics addressed in the audit will vary slightly depending on specific conditions and activities on the ship. Table 9 presents guidance for the protocol checklist related to nonhazardous waste management. Table 10 functions as the protocol checklist for this portion of the audit.

As part of the audit, the team must review appropriate records and inspect physical locations on the vessel. Section 3.5.1 lists records to review related to nonhazardous waste management, and Section 3.5.2 lists the physical features to inspect on the vessel.

***Table 9. Guidance on Nonhazardous Waste Management Checklist***

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO* | |
|---|---|---|
| | *CHECKLIST ITEMS* | *PAGE NUMBERS* |
| All Facilities | SW.1 through SW.3 | 3-7 |
| Storage/Collection of Solid Waste | SW.4 through SW.7 | 3-8 to 3-9 |
| Recycling | SW.8 | 3-9 |
| Solid Waste Disposal at Sea | SW.9 | 3-10 |
| Disposal of Refuse from Outside of the United States | SW.10 through SW.11 | 3-10 |
| Medical Waste Management | SW.12 through SW.13 | 3-11 to 3-12 |

## *Table 10. Checklist for Nonhazardous Waste Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **All Vessels** | |
| SW.1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/ identifying information as the citation.) | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements or equivalent State enforcement actions.<br><br>If there are open items, document what corrective action is planned and review progress on the plan to ensure that it is being implemented. |
| SW.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if any new regulations have been issued since the finalization of the guide.<br><br>Determine if the vessel has activities or equipment which are Federally regulated, but not addressed in this checklist.<br><br>Verify that the vessel is in compliance with all applicable and newly issued regulations. |
| SW.3. Vessels are required to comply with State and local solid waste regulations concerning solid waste management (EO 12088, Sect. 1-1). | Verify that at the vessel is abiding by State and local solid waste requirements.<br><br>Verify that the vessel is operating according to any permits issued by the State or local agencies.<br><br>***NOTE:*** Issues typically regulated by State and local agencies that may apply to vessels include:<br>- Design and operation specifications for solid waste receptacles<br>- Handling and disposal of medical, pathological, and infectious waste<br>- Recycling requirements |

## *Table 10. Checklist for Nonhazardous Waste Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Storage/Collection of Solid Waste** | |
| SW.4. Vessels in port should store all solid wastes and all materials separated for recycling according to specific guidelines (40 CFR 243.200-1). | Verify that all solid wastes are stored so as not cause a fire, health or safety hazard or provide a harbor for vectors.<br><br>Verify that all solid waste containing food wastes, if not ground to meet disposal standards at sea or incinerated, are stored in covered or closed containers which are nonabsorbent, leakproof, durable, easily cleaned, and designed for safe handling. Verify that single use bags containing food waste are stored within the confines of a vessel or container.<br><br>Verify that waste is contained or bundled so as to not result in spillage. Verify that containers are stored on a firm, level, well-drained surface.<br><br>Verify that solid waste containers are of an adequate size and number to contain all waste generated between collections.<br><br>Verify that bulky wastes are stored so as not to create a nuisance and to avoid the accumulation of solid waste and water in and around the bulky items.<br><br>Verify that reusable containers are capable of being serviced without the collector coming into contact with the waste.<br><br>Verify that plastics and synthetics are segregated from other shipboard-generated waste and retained for incineration onboard or disposal ashore. |
| SW.5. Vessels are required to collect solid wastes in a safe, efficient manner (MARPOL V, 40 CFR 243.204-1 NC Instruction 5100.1B, Section 9-4)). | Verify that solid wastes or materials separated for recycling and accounting purposes under MARPOL V are collected in a safe efficient manner. |
| SW.6. As a management practice, vessel industrial shop waste receptacles should be inspected quarterly to verify that wastes containing hazardous materials and recyclables are not being deposited in the solid waste receptacles (MP). | Verify that receptacles were inspected by reviewing records and interviewing personnel.<br><br>Verify that corrective actions were taken where indicated.<br><br>Verify by a visual check that waste containing hazardous materials is not present in the solid waste receptacles at shops. |
| SW.7. Vessel personnel should be periodically informed about materials that are prohibited from disposal in solid waste receptacles (MP). | Verify by reviewing the ship s Waste Management Plan that a program exists on the vessel to keep personnel informed about proper waste disposal practices. |

## *Table 10. Checklist for Nonhazardous Waste Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Recycling** | |
| SW.8. Vessels in port should participate in any State or local recycling programs and reduce the volume of solid waste materials at the source whenever practical (State and local regulations). | Verify by reviewing the ship s Waste Management Plan that a solid waste reduction program exists.<br><br>Verify that records of solid waste generation, reduction, and recycling are maintained.<br><br>Verify that recycling programs are in compliance with applicable State or local requirements.<br><br>Verify that reusable or marketable materials are collected at regular intervals. |
| **Solid Waste (Trash and Garbage) Disposal at Sea** | |
| SW.9. MARPOL 73/78, Annex V, the Refuse Act of 1899 and NC Instruction 5100.1B prohibit the discharge of trash and garbage within 3 miles of nearest land; dunnage, lining, and packing materials within 25 miles of nearest land, and any discharge of plastics in any waters. | Verify that the ship has developed a Waste Management Plan as part of the ship s Standing Orders, and that it reflects these requirements in accordance with section 9-4.1 of NC Inst. 5100.1B and Annex 6 of MARPOL V.<br><br>Verify that the ship is keeping a Garbage Record Book as specified in Annex 13 of MARPOL V.<br><br>Verify that the ship is displaying waste management placards in prominent locations so that the crew and scientific personnel are informed of proper disposal procedures.<br><br>Review ship s Waste Management Plan and interview crew to verify that:<br>- trash, garbage, or food wastes are not disposed of overboard within 3 miles of land.<br>- there is no discharge of trash, garbage, food wastes, or incinerator ash when between 3 and 12 nautical miles of nearest land unless it is ground and can pass through a screen with mesh openings not greater than 25 millimeters.<br>- that no dunnage, lining or packing material is discharged within 25 miles of land.<br>- that nondegradable materials discharge outside the above limits are holed and weighted to assure immediate sinking.<br>- that all plastics and synthetic material is incinerated or retained on board for disposal ashore. |

## *Table 10. Checklist for Nonhazardous Waste Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Disposal of Refuse from Outside the United States in Port and at Sea** | |
| SW.10. Garbage from outside the United States which is on or unloaded from vessels or aircraft arriving in the United States and certain territories and possessions is subject to inspection and disposal requirements to prevent dissemination of pests and diseases (7 CFR 330.400(d) and 330.400(g)(1) and 330.400(g)(2)). | Verify that garbage on or unloaded from vessels or aircraft arriving in the places listed below complies with inspection and disposal requirements:<br>- The United States from any place outside of the United States<br>- The continental United States from Hawaii or any territory or possession<br>- Any territory or possession from any other territory or possession or Hawaii, and<br>- Hawaii from any territory or possession.<br><br>Verify that in arriving vessels and aircraft:<br>- The garbage is contained in tight leakproof, covered receptacles inside guard rails on vessels<br>- The garbage is removed in tight, leakproof, covered containers under direction of U.S. Department of Agriculture (USDA) inspector to an approved facility for incineration, sterilization, or grinding into an approved sewage system, or<br>- The garbage is removed for other handling and under supervision approved by the USDA. |
| SW.11. USDA Regulations require that produce and food wastes originating from outside the U.S. be disposed of at sea in accordance with USDA procedures. | Verify that all produce and food wastes returning from foreign ports is disposed of at sea beyond the 25 nautical mile limit, or segregated and disposed of ashore using USDA approved methods (See requirements above). |
| **Medical Waste** | |
| SW.12. Contaminated sharps are to be placed immediately in containers meeting specific requirements (29 CFR 1910.1030d)(4)(iii)(A)). | Verify that contaminated sharps are placed in containers that are:<br>- Closable<br>- Puncture resistant<br>- Leakproof on sides and bottoms<br>- Labeled or color coded<br><br>Verify that during use, containers for contaminated sharps are:<br>- Easily accessible<br>- Maintained upright throughout use<br>- Replaced routinely and not be allowed to overfill<br><br>Verify that when the containers of contaminated sharps are being moved from the area of use, the containers:<br>- Are closed<br>- Placed in a secondary container if leakage is possible<br><br>Verify that reusable containers are not opened, emptied, or cleaned manually or handled in any other manner that would expose employees to risk. |

| *Table 10. Checklist for Nonhazardous Waste Management* | |
|---|---|
| ***REGULATORY REQUIREMENTS:*** | ***REVIEWER CHECKS:*** |
| SW.13. Regulated wastes (see definitions) are required to be handled and placed in containers that meet specific standards (29 CFR 1910.1030(d)(4)(iii)(B)). | Verify that regulated wastes are placed in containers that are:<br>- Closable<br>- Constructed to contain all contents and prevent leakage of fluids<br>- Labeled or color coded<br>- Closed prior to removal<br><br>***NOTE:*** Regulated wastes which have been decontaminated need not be labeled or color coded.<br><br>Verify that if outside contamination of the regulated waste occurs, it is placed in a second container.<br><br>Verify that receptacles with the potential for contamination are regularly inspected and decontaminated. |
| SW.14. Labels affixed to containers of regulated wastes, refrigerators and freezers containing blood or other potentially infectious materials, and other containers used to store, transport, or ship blood or other potentially infectious materials must meet specific standards (29 CFR 1910.1030(g)(1)(i)). | Verify that the labels:<br>- Include the biohazard symbol<br>- Are fluorescent orange or orange-red or predominantly so, with lettering and symbols in contrasting color<br>- Are affixed as closely as possible to the container to prevent loss or removal<br><br>***NOTE:*** Red bags or containers may be used as a substitute for labels.<br><br>***NOTE:*** Regulated waste that has been decontaminated need not be labeled and color coded. |

### 3.5.1 RECORDS TO REVIEW

Ship s Garbage (Waste) Management Plan

Vessel procedures for quantifying and classifying generation of solid wastes

Vessel procedures for determining whether solid wastes are hazardous or nonhazardous

Ship s Garbage Record Book, Deck Log, or other log recording discharges of garbage at sea or to port reception facilities

### 3.5.2 PHYSICAL FEATURES TO INSPECT

Areas where nonhazardous waste is collected

Waste receptacles including recycling facilities

Ship s solid waste processing equipment including compactors, incinerators, and comminuters

## 3.6 SUMMARY OF CHANGES AND ISSUES ASSOCIATED WITH NONHAZARDOUS WASTE MANAGEMENT

A number of changes have been made to this section. Section B has been expanded to reflect current requirements under Annexes 6 and 13 to MARPOL V dealing with Garbage Management Plans and Garbage Record Books, which become effective for existing NOAA ships on 1 July 1998.

During the audits, the question has arisen as to whether NOAA vessels are formally required under MARPOL to maintain these two documents. At the time the audit protocol was drafted, maintaining these two documents was not a formal requirement, but rather a suggested compliance promoting measure for participating governments. The United States implemented these documentation measures for commercial vessels through 33 CFR 151, which specifically excluded public vessels (including NOAA ships). Thus, at present, NOAA ships are not strictly required to maintain Garbage Management Plans and Garbage Record Books in the specified Annex 6 and Annex 13 format (although NOAA ships are required to maintain a "Waste management Plan" under NC Instruction 5100.1B, Section 9-4).

However, on July 1, 1998, the Garbage Management Plan and Garbage Record Book will become a formal requirement for ships 400 tons and greater, similar to the current Oil Record Book. As NOAA ships are expected to comply with the provisions of MARPOL, and as compliance with the Garbage Management Plan and Garbage Record Book requirements is reasonable and practical, NOAA ships should maintain these documents as of July 1, 1998.

# 4.0 WASTES CONTAINING HAZARDOUS MATERIALS ENVIRONMENTAL COMPLIANCE PROTOCOL

This section applies to vessels that generate, store, or transfer waste containing hazardous materials. This can include common materials found on most NOAA vessels (such as waste paint and solvents). Therefore this section will apply to most NOAA vessels. By law, public vessels are not generators of hazardous waste under RCRA Section 3022, unless the vessel is in reserve or out of service, or if a vessel receives waste transferred from another public vessel within the territorial waters of the United States and stores the waste for more than 90 days. However, NOAA Corps Instruction 6280B directs that waste containing hazardous materials be handled according to specified procedures.

Guidance is provided on the checklists to direct the assessor to the regulations concerning the type of wastes containing hazardous materials normally generated aboard vessels. The handling and disposal of asbestos waste materials are addressed in the Air Pollution Control Section (Section 1).

## 4.1 FEDERAL LEGISLATION AND REQUIREMENTS

There are two Federal laws and one Executive Order that pertain to wastes that contain hazardous materials. The primary law is RCRA, which the Federal Facilities Compliance Act (FFCA) reinforces. The EO supports the purposes of FFCA. Each of these is described below.

### 4.1.1 RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), SUBTITLE C (1976)

Public Law (PL) 98616; 42 USC 6921-6939b, establishes standards and procedures for the handling, storage, treatment, and disposal of hazardous waste. Specifically, RCRA prohibits the placement of bulk or noncontainerized liquid hazardous waste or free liquids containing hazardous waste into a landfill. It also prohibits the land disposal of specified wastes and disposal of hazardous waste through underground injection within 1/4 mile (0.40 km) of an underground source of drinking water.

Section 3022 of RCRA excludes public vessels from being generators of hazardous waste except for vessels that store hazardous waste more than 90 days after the vessel is placed in reserve or out of service or when a public vessel receives hazardous waste from another public vessel and stores that waste for more than 90 days.

The law also provides for the management of used oil. Under RCRA, used oil is not a listed hazardous waste, but regulations promulgated under RCRA (40 CFR 279) establish management standards for used oil generators, collection center aggregation points, transporters, transporter facilities, used oil processors, refineries, used oil burners who burn off-specification used oil for energy recovery, and used oil fuel marketers. It also includes standards for the use and disposal of used oil when it is used as a dust suppressant.

### 4.1.2 FEDERAL FACILITY COMPLIANCE ACT (FFCA) OF 1992

This act provides for a waiver of sovereign immunity with respect to Federal, State, and local procedural and substantive requirements relating to RCRA solid and hazardous waste laws and regulations. Additionally, it defines hazardous waste in relation to public vessels, expands the definition of mixed waste, addresses the issue of munitions, and discusses waste discharges to FOTWs.

### 4.1.3 EXECUTIVE ORDER (EO) 12088, FEDERAL COMPLIANCE WITH POLLUTION STANDARDS

This EO, dated 13 October 1978, requires Federally owned and operated facilities to comply with applicable Federal, State, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, State, and local environmental requirements and for correcting situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

## 4.2 STATE AND LOCAL REGULATIONS

Many states have met the EPA requirements in 40 CFR 271 and have been authorized to manage their own State programs. RCRA encourages states to develop their own hazardous waste statutes and to operate regulatory programs. Many states have adopted the EPA regulations by reference or have promulgated regulations that are identical to the EPA regulations, while other states have promulgated regulations more stringent than the Federal RCRA. These differences between individual State regulations and the Federal program require that assessors check the status of the State's authorization and then determine which regulations apply. For example, some states have listed additional waste as hazardous waste (used oil, PCBs, asbestos). Since the section check-lists are based exclusively on the requirements of the Federal RCRA/EPA program, it is necessary to determine in what ways the applicable State program differs from the RCRA/EPA program.

## 4.3 KEY COMPLIANCE REQUIREMENTS

Compliance requirements associated with wastes containing hazardous materials stipulate procedures for storage, transfer, and management of the materials. In addition, procedures are required to minimize the amount of waste produced. These topics are addressed below.

### 4.3.1 GENERATOR REQUIREMENTS

Responsibilities of vessels in reserve or out of service are based on the amount of waste being generated in one month. Typical wastes include solvents, paint, contaminated antifreeze or oil, and sludges. In some states, waste oil and other substances have been classified as a hazardous waste and

therefore need to be included in the total amount of waste being generated. Within Federal regulations there are three classifications:

> Conditionally Exempt Small Quantity Generator (CESQG) produces no more than 100 kg (220.46 lb) of hazardous waste or 1 kg (2.20 lb) of acutely hazardous waste in a one- month period. They also do not accumulate onsite more than 1,000 kg (2204.62 lb) of waste at any one time. When either the volume of waste produced in one month exceeds 100 kg (220.46 lb) or more than 1,000 kg (2204.62 lb) of waste has accumulated onsite, the facility is required to comply with the more stringent standards applicable to a Small Quantity Generator (SQG).
>
> An SQG produces between 100 kg (220.46 lb) and 1,000 kg (2204.62 lb) of hazardous waste in a month. The waste cannot accumulate onsite for more than 180 days unless the waste is transported more than 200 miles (321.87 km) to a Treatment, Storage, and Disposal Facility (TSDF). In that situation, the waste can accumulate for 270 days. But at no time is there to be more than 6,000 kg (13,227.73 lb) of waste accumulated at the facility. When the volume of waste generated in one month exceeds 1,000 kg (2204.62 lb) of hazardous waste or 1 kg (2.20 lb) of acutely hazardous waste or the accumulation time limit is exceeded, the facility is required to comply with the standards for a Generator. When more than 6,000 kg (13,227.73 lb) of waste is stored onsite, the SQG is required to obtain a permit and comply with the requirements of 40 CFR 264 and 40 CFR 265.
>
> A Generator produces more than 1,000 kg (2204.62 lb) of hazardous waste in a month. (NOTE: Using water, which weighs approximately 8 lbs/gallon (3.63 kg/gal) as a basis of measurement, 100 kg (220.46 lb) would equal about 28 gallons (105.99 L) (one-half of a 55 gallon (208.20 L) drum), 1,000 kg (2204.62 lb) would equal about 273 gallons (1036.15 L) (almost five 55 gallon drums). A summary of the requirements for CESQGs, SQGs, and Generators is presented in Table 11.

Whether the out-of-service or reserve vessel is a CESQG, SQG, or a Generator determines record keeping requirements and design standards for storage areas. Storage areas connected with generation points are often referred to as accumulation points. Regardless of the amount of hazardous waste generated, every facility is required to test or use knowledge of materials or processes used to determine if it is a listed hazardous waste or has hazardous characteristics.

As indicated above, vessels are not considered hazardous waste generators under RCRA, but do carry wastes containing hazardous materials.

### 4.3.2 TRANSPORT AND TRANSFER REQUIREMENTS

Containers of hazardous waste shipped offsite must be labeled to identify the waste and its hazard class.

### 4.3.3 ACCUMULATION POINT MANAGEMENT

An accumulation point is an area in or near the workplace where hazardous waste is accumulated or stored before being turned in for disposal. Storage in these areas is temporary and the permissible length of time for accumulation depends on what size generator the vessel is.

***Table 11. Comparison of RCRA Generator Requirements for Different Types of Waste Generators***

| *REQUIREMENT* | *CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR* | *SMALL QUANTITY GENERATOR* | *GENERATOR* |
|---|---|---|---|
| Identify Hazardous Waste | Yes | Yes | Yes |
| Quantity Limits | 100 kg/mo (220.46 lb/m) | 100 kg/mo (220.46 lb)<br>1,000 kg/mo (2204.62 lb) | >1,000 kg/mo (2204.62 lb/ mo) |
| Acute Waste Limits | 1 kg/mo (2.20 lb/mo) | 1 kg/mo (2.20 lb/mo) | None |
| Facility Receiving Waste | State approved or RCRA permitted | RCRA permitted facility | RCRA permitted facility |
| EPA Identification Number | Not Required | Required | Required |
| RCRA Personnel Training | Not Required | Basic Training Required | Required |
| Department of Transporation Training | Required | Required | Required |
| Exception Report | Not Required | Required >60 days | Required >45 days |
| Biennial Report | Not Required | Not Required | Required |
| On-site Accumulation Limits (without permit) | 1,000 kg (2204.62 lb) | 6,000 kg (13,227.73 lb) | Any quantity |
| Accumulation Time Limits (without permit) | None | 180 days or<br>270 days (>200 mi (321.87 km)) | 90 days +<br>30 days granted by EPA |
| Storage Requirements | None | Basic requirements with technical standards for containers or tanks | Full compliance with management of containers or tanks |
| Use Manifests | No | Yes* | Yes* |
| *Unless the waste is reclaimed under contractual agreement and properly marked and labeled. | | | |

### 4.3.4 MINIMIZATION/POLLUTION PREVENTION

Waste minimization and pollution prevention programs are being increasingly discussed and implemented by both environmental managers and environmental policy makers. Usually defined as a reduction in the volume and toxicity of waste, waste minimization often pays for itself through reduced environmental costs, operating costs, and liability. While these cost savings are often enough to justify a program, there are an increasing number of voluntary and mandatory programs that drive waste minimization/pollution prevention.

## 4.4 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable international, Federal, State, local, and agency requirements.

As part of this audit, the audit team must review appropriate records and inspect physical locations on the vessel. The list of relevant records to review is presented in Section 4.4.1. The physical features to inspect are listed in Section 4.4.2.

The topics addressed in the audit will depend on the types of activities conducted on the ship, the historical background of the vessel, and the types of equipment and facilities on the ship. Table 12 presents guidance for the protocol checklist related to wastes containing hazardous materials. Table 13 functions as the checklist itself.

***Table 12. Guidance on Waste Containing Hazardous Materials Checklist***

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO* | |
|---|---|---|
| | *CHECKLIST ITEMS* | *PAGE NUMBERS* |
| All Vessels | HW.1 through HW.3 | 4-6 |
| Designation of Individuals Responsible for Hazardous Waste Management | HW.4 | 4-7 |
| Management of Wastes Containing Hazardous Materials | HW.5 through HW.10 | 4-7 to 4-10 |
| Transportation and Shoreside Transfer of Hazardous Waste | HW.10 through HW.12 | 4-11 |
| Used Oil | HW.13 | 4-11 |

## *Table 13. Checklist for Waste Containing Hazardous Materials*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **All Vessels - General Requirements** | |
| HW.1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/identifying information as the citation.) | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements or equivalent State enforcement actions.<br><br>For those open items, indicate what corrective action is planned and milestones established to correct problems. |
| HW.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards.<br><br>Determine if the vessel has activities or facilities which are Federally regulated, but not addressed in this checklist.<br><br>Verify that the vessel is in compliance with all applicable and newly issued regulations. |
| HW.3. Vessels are required to comply with State and local regulations concerning hazardous waste management (EO 12088, Sect 1-1; Federal Facilities Compliance Act, Section 102). | Verify that the vessel is abiding by State and local hazardous waste requirements.<br><br>Verify that the vessel is operating according to permits issued by the State or local agencies where approved.<br><br>***NOTE:*** Issues typically regulated by State and local agencies include:<br>- Additional manifesting requirements<br>- More frequent reporting requirements<br>- Transportation<br>- Identification of special waste or waste categories<br>- Regulation of specific substances as hazardous waste such as: medical, pathological, and infectious waste; used oil; explosives; used batteries<br>- Small and very small quantity generator requirements<br>- RCRA permitting of OWSs<br>- Disposal requirements<br>- Container marking and labeling requirements.<br><br>Verify that the actions detailed in compliance agreements are being taken according to the schedule established in the agreements. |

## *Table 13. Checklist for Waste Containing Hazardous Materials*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Designation of Individuals Responsible for Management of Wastes Containing Hazardous Materials** | |
| HW.4. NC Instruction 6280B requires that commanding officers of vessels formally designate an individual responsible for management of hazardous materials and wastes containing hazardous materials aboard ship. | Verify that an official has been formally designated and that the letter of designation is filed in the individual s personnel record in accordance with NC Inst. 6280B. |
| **Management of Wastes Containing Hazardous Materials** | |
| HW.5. Vessels out of service or in reserve that generate solid wastes must determine if the wastes contain hazardous materials (40 CFR 261.3, 261.4(b), 261.24; 262.11). | Auditors must ascertain whether the vessel is out of service or being held in reserve.<br><br>Auditors must determine whether the active vessel has received and stored hazardous waste transferred from another public vessel.<br><br>Determination of whether or not a waste contains hazardous materials can be done through one of the following:<br>- Knowledge of all the constituents of the waste (MSDSs)<br>- Laboratory analysis<br>- Knowledge of processes used<br>- Collection of a sample for the sole purpose of testing to determine characteristics or composition.<br><br>***NOTE:*** Unidentified waste materials and spilled hazardous materials may have to be disposed of as hazardous waste depending on their constituents or characteristics.<br><br>Discuss with staff how wastes generated on the facility were identified and classified.<br><br>Determine if the facility followed EPA criteria for identifying the characteristics of hazardous waste and EPA's listed wastes in 40 CFR 261 (see 40 CFR 261.30 through 261.31, 40 CFR 261.33, 40 CFR 261.24 and 40 CFR 261 Appendix VIII).<br><br>Determine whether the vessel generates, transports, treats, stores, or disposes of any wastes containing hazardous materials (see 40 CFR 261.30 through 261.31, 40 CFR 261.33, 40 CFR 261.24 and 40 CFR 261 Appendix VIII for guidance) and the quantity.<br><br>Waste documentation must be in vessel records.<br><br>Verify that listed wastes are tested for reactivity, corrosivity, ignitability, and toxicity characteristics.<br><br>Determine if wastes contain contaminants in greater concentrations than the toxicity characteristics listed in 40 CFR 261.24.<br><br>Verify that all data used for determination, including quality assurance data, is maintained and kept available for reference or inspection. |

## *Table 13. Checklist for Waste Containing Hazardous Materials*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| HW.6. Areas where containers of waste containing hazardous materials are stored should have secondary containment (MP). | Verify that the areas where containers of wastes containing hazardous materials are stored have secondary containment. |
| HW.7. Vessel personnel who handle waste containing hazardous materials should meet certain training requirements (NC Instruction 6280B). | Verify that the training program is directed by a person trained in management of hazardous wastes.<br><br>Verify that the training program includes the following:<br>- Contingency plan implementation (emergency procedures, equipment, and systems)<br>- Response to fire or explosion<br>- Response to leaks or spills<br>- Waste turn-in procedures<br>- Identification of wastes containing hazardous materials<br>- Container use, marking, labeling, and on-base transportation<br>- Manifesting and off-base transportation<br>- Accumulation point management<br>- Personnel health and safety and fire safety<br><br>Verify that new employee training is completed within 60 days of employment.<br><br>Verify that an annual refresher training is provided.<br><br>Verify that employees do not work unsupervised until training is completed.<br><br>Verify specifically that accumulation point managers and hazardous waste handlers have been trained. |
| HW.8. Training records must be maintained for all vessel personnel who manage waste containing hazardous materials (NC Instruction 6280B). | Examine training records and verify they include the following:<br>- Job title and description for each employee by name<br>- Written description of how much training each position will obtain<br>- Documentation of training received by name.<br><br>Determine if training records are retained for five years after employment. |
| HW.9. Containers should be managed in accordance with specific management practices (NC Instruction 6280B). | Verify by inspecting storage areas that wastes containing hazardous materials are segregated and stored in accordance with NC Instruction 6280B. |
| HW.10. Containers of waste containing hazardous materials should be kept in designated storage areas (NC Instruction 6280B). | Verify that all waste containers are identified and stored in appropriate areas.<br><br>Verify that wastes containing hazardous materials are properly segregated in accordance with NC Instruction 6280B and Supplement #6 to this instruction.<br><br>***NOTE:*** Any unidentified contents of solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply. |

## *Table 13. Checklist for Waste Containing Hazardous Materials*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Transport and Shoreside Transfer of Hazardous Wastes** | |
| HW.11. The vessel should ensure that transportation of wastes containing hazardous materials between the vessel and shoreside disposal facilities be accomplished in accordance with good management practices to help prevent spills, releases, and accidents (MP). | Determine if procedures exist to manage movement of wastes containing hazardous materials from ship to shore.<br><br>Verify that records are maintained documenting the transfer of wastes containing hazardous materials (type and quantity) from the ship to a shoreside contractor, reception facility, or NOAA Marine Center.<br><br>Determine if personnel transferring wastes containing hazardous materials are trained in spill control procedures.<br><br>Ensure that wastes containing hazardous materials are delivered directly into the custody of the shoreside hazardous waste manager and not left unattended on the pier or other parts of the receiving facility.<br><br>Verify that all wastes containing hazardous materials generated by the vessel s scientific party are removed from the vessel, or that other arrangements for disposal are made with the vessel. |
| HW.12. Before transferring waste containing hazardous materials to the shoreside facility, the vessel will ensure that wastes are segregated, placed in containers, and marked in accordance with NC Instruction 6280B. | Verify that wastes are segregated, placed in containers, color coded and marked Hazardous Waste in accordance with Supplement # 8 NC Instruction 6280B. |
| **Used Oil** | |
| HW.13. Depending on the constituents of the used oil, vessels are required to handle used oil as a waste containing hazardous materials or according to specific used oil requirements (40 CFR 279.10). | Determine which types of the used oils are generated at the vessel.<br><br>Verify that used oil is handled according to its classification as one of the following (see flow chart):<br>- A hazardous waste<br>- Used oil that falls under the requirements of 40 CFR 279<br>- Used oil that is not subject to the requirements of the 40 CFR 279 and neither is it a hazardous waste unless testing indicates it does contain hazardous constituents. |

### 4.4.1 RECORDS TO REVIEW

Vessels as Conditionally Exempt Small Quantity Generators

Hazardous waste shoreside transfer inventories (including records of transfer from ship to NOAA Marine Center)

Inspection logs

Employee training documentation

### 4.4.2 PHYSICAL FEATURES TO INSPECT

Accumulations points

Storage facilities (including drums and storage lockers)

Used oil storage site

## 4.5 SUMMARY OF CHANGES AND ISSUES

During the ship audits, compliance with this section was generally good. The deficiencies noted involved recorkeeping for the training and designation of hazardous material/waste control personnel. The following minor changes were made to Section 4.

Note on exempted materials in item WP. 5 has been deleted as not being applicable to NOAA ships audited.

Item WP. 9 regarding containers that have contained hazardous wastes has been deleted because provisions for cleaning and evacuation cannot be verified in the course of an audit.

A provision has been added to WP. 11 regarding documentation of transfer of wastes containing hazardous material from ship to shore.

# 5.0 SPILL CONTROL AND RESPONSE ENVIRONMENTAL COMPLIANCE PROTOCOL

This section applies to all NOAA vessels. In general, different requirements apply to various NOAA vessels depending on the size of the vessel. Vessels greater than 400 gross tons are subject to the requirements on MARPOL 73/78 Annex I. All NOAA vessels follow the oil pollution prevention and response provisions of 33 CFR 155 and 33 CFR 156 as implemented by NC Instruction. These provisions are specified in NC Instruction 5100.1B (which became effective 1 January 1997), NC Instruction 9540 and the NOAA SOPEP of April 1995.

## 5.1 INTERNATIONAL REGULATIONS AND GUIDELINES

International requirements for oil pollution prevention and oil spill response relevant to NOAA vessels are contained in MARPOL 73/78, Annex I. The pollution prevention requirements for NOAA vessels of 400 gross tons and above are specifically addressed in Regulation 9 (Control of discharge of oil), Regulation 10 (Methods for the prevention of pollution from ships while operating in special areas), Regulation 16 (Oil discharge monitoring and control system and oily water separating and oil filtering equipment), and Regulation 20 (Oil Record Book). The provisions of Regulation 10 apply to NOAA vessels operating in the Baltic Sea, Black Sea, Mediterranean Sea, and Antarctic Waters.

The pollution response requirements for NOAA vessels of 400 tons gross tonnage and above are contained in Regulation 26 (SOPEP).

## 5.2 FEDERAL LEGISLATION

Three pieces of Federal legislation are specifically related to spill control and response procedures for NOAA vessels. These deal primarily with discharge of oil. Each is briefly described below.

### 5.2.1 ACT TO PREVENT POLLUTION FROM SHIPS (APPS)

APPS implements the oil and oily water discharge requirements of Annex I of MARPOL. Although MARPOL Annex I does not strictly apply to public vessels, the Act requires heads of Federal departments to prescribe standards for ships under their authority that are consistent with those of the MARPOL protocol so far as it is reasonable and practicable without impairing the operational capabilities of such ships. APPS applies to U.S. vessels worldwide.

### 5.2.2 FEDERAL WATER POLLUTION CONTROL ACT OF 1972

This law is the primary Federal law governing the discharge of oil into navigable waters. The Federal Water Pollution Control Act (FWPCA) of 1972 was amended by the Clean Water Act

(CWA) of 1977. Section 311 of the CWA describes a policy that no discharges of oil or hazardous substances into navigable waters should occur. The CWA specifically prohibits the discharge of oil in a harmful quantity into all waters within 12 nautical miles of the U.S. coast. EPA regulations provide that a discharge of oil in harmful quantity is one that violates applicable water quality standards or causes a sheen on the water. In general, oil concentrations in excess of 15 ppm are sufficient to cause a sheen.

### 5.2.3 THE OIL POLLUTION ACT (OPA) OF 1990

This law, PL 301-308; 33 U.S. Code (USC) 2701-2761, as amended, requires the prevention of oil pollution into navigable waters by tank vessels and tank barges. Additionally, this act applies to the storage of flammable and combustible liquids. The provisions of OPA 90 have been implemented in 33 CFR 153, 154 and 155. These provisions apply only to tank vessels and tank barges and therefore do not apply specifically to NOAA vessels. However, the passage of OPA 90 has caused various Federal seagoing services to upgrade their oil spill prevention and response programs.

## 5.3 STATE AND LOCAL REGULATIONS

Many states (e.g., New Jersey, Washington, and California) have developed and implemented regulations that closely parallel the Federal regulations. Some, however, may differ in important ways, and the evaluator should obtain copies of the State requirements for oil spill prevention and response, where appropriate, and review them for those differences before conducting the evaluations.

## 5.4 KEY COMPLIANCE REQUIREMENTS

Compliance requirements related to spill control and response focus on prevention of oil discharges, whether from routine operations or from emergencies. Discharges are to be pretreated according to specific standards, and procedures are to be implemented to minimize the potential for spills and to respond effectively to spills if they occur. These requirements are discussed below.

### 5.4.1 OILY WASTE POLLUTION STANDARDS AND EQUIPMENT REQUIREMENTS

***Oily Waste Discharge Standards.*** All NOAA vessels must comply with the discharge standards set forth in MARPOL Annex I and the CWA as implemented in 33 CFR 151 and 33 CFR 155, which prohibit the discharge of oily waste with oil concentrations in excess of 15 ppm within 12 nautical miles of nearest land.

***Oily Water Equipment Standards.*** All NOAA vessels of 400 gross tons and above must have an approved 15 ppm oily water separator (OWS), an effluent alarm, a sludge tank, and fixed means of discharging oily waste ashore. All NOAA vessels and launches less than 400 gross tons must have an OWS or retain all wastes for discharge ashore.

### 5.4.2 REQUIREMENTS FOR OIL TRANSFER OPERATIONS

All NOAA vessels must have procedures in place for conducting oil transfer operations that are consistent with 33 CFR 155 and 156. For vessels with a fuel oil storage capacity of 10,000 gallons or greater, these procedures must be published and maintained in the ship s Standing Orders.

### 5.4.3 SPILL RESPONSE REQUIREMENTS

All NOAA vessels will develop, implement and maintain an oil spill response contingency plan consistent with Regulation 26, of MARPOL Annex I, according to the format specified in the NOAA SOPEP. NOAA vessels will further conduct training exercises in accordance with the SOPEP.

## 5.5 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable international, Federal, State, local and agency requirements. The topics addressed in the audit will vary slightly, depending on specific conditions and activities on the ship. Table 14 presents guidance for the protocol checklist related to spill control and response. Table 15 functions as the protocol checklist for this portion of the audit. As part of this audit, the team must review appropriate records and inspect physical locations on the vessel. Section 5.5.1 lists the records to review related to spill control and response, and Section 5.5.2 lists the physical features to inspect on the vessel.

*Table 14. Guidance on Spill Control Checklist*

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO CHECKLIST ITEMS* | *REFER TO PAGE NUMBERS* |
|---|---|---|
| All Vessels | S.1 through S.3 | 5-4 |
| Oily Waste Handling and Discharge | S.4 through S.8 | 5-4 to 5-5 |
| Oil Transfer Operations | S.9 through S.10 | 5-5 to 5-6 |
| Spill Contingency Planning and Response | S.11 through S.14 | 5-6 |

## *Table 15. Checklist for Spill Control and Response*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **All Vessels** | |
| S.1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/ identifying information as the citation.) | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements, or equivalent State enforcement actions.<br><br>If actions have not been taken, indicate what, if any, corrective action plan has been developed and give a timetable for completion. |
| S.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards.<br><br>Determine if the vessel has activities or facilities that are regulated but not addressed in this checklist.<br><br>Annotate the checklist to include new standards, and verify that the facility is in compliance with all applicable and newly issued regulations. |
| S.3. Vessels are required to abide by State and local regulations concerning spill management (EO 12088, Sect. 1-1). | Annotate the protocol to include State/local standards and verify that the vessel is abiding with State and local requirements.<br><br>***NOTE:*** Issues typically regulated by State and local agencies include:<br>- Spill response<br>- Special provisions for fuel transfer (e.g., protective booming)<br>- Reporting and record keeping<br>- Containment |
| **Oily Waste Handling and Discharge** | |
| S.4. MARPOL 73/78, Annex I 33 CFR 155, and NC Inst. 5100.1B require that all NOAA vessels over 400 gross tons shall have an OWS, sludge tank, and a means to discharge oil to shore. | Verify that the ship has on board an approved and fully operational OWS with an effluent alarm that shuts down the OWS or redirects effluent to prevent overboard discharge when 15 ppm is exceeded.<br><br>Verify that the vessel is equipped with a fully operational sludge tank and fixed means to discharge oily waste to shore.<br><br>Verify that the OWS, sludge tank, and shoreside discharge line are routinely inspected to ensure proper operation. |

## *Table 15. Checklist for Spill Control and Response*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| S.5. MARPOL 73/78, Annex I 33 CFR 155, and NC Inst. 5100.1B require that all NOAA vessels 400 gross tons and above shall have an approved OWS or retain oily waste on board in an oily water holding tank (OWHT), or in the vessel s bilge for discharge to shore. | Verify that the ship has on board an approved OWS that it is fully operational, or<br><br>Verify that the ship has an oily OWHT or retains oily water in the bilge for discharge to shore.<br><br>Verify that the OWS and OWHT are routinely inspected and properly maintained. |
| S.6. 33 CFR 155.450 requires that vessels greater than 26 feet in length display Oil Discharge Placards in each machinery space or at bilge and ballast pump control stations. NC 5100.1B Section 9.2.4 also requires placards. | Verify that the approved placards are placed as required in NC Instructions. |
| S.7. MARPOL 73/78 Annex I, Regulation 20, 33 CFR 151.25 and NC Instruction 5100.1B require that NOAA vessels of 400 gross tons and more maintain an Oil Record Book. | Verify that the vessel is maintaining an Oil Record Book as specified by NC Instruction 5100.1B.<br><br>Verify that entries are being made when the following operations take place:<br>- Ballasting and cleaning of fuel oil tanks;<br>- Discharge of dirty ballast or cleaning water from fuel oil tanks;<br>- Disposal of oily residues (sludge); and<br>- Discharge overboard or disposal otherwise of bilge water that has accumulated in machinery spaces. |
| S.8. NC Instruction 5100.1B requires that all NOAA small boats adhere to the requirements of Chapter 9 with regard to overboard discharge or disposal of oily waste. | Verify that oily bilge wastes are not being discharged from boats where prohibited.<br><br>Verify that small boat crews are trained with respect to small boat environmental protection requirements.<br><br>***(NOTE:*** Discharges of oil from a properly functioning vessel engine are not considered harmful, but discharges of oil from a vessel's bilge are not allowed. |

## *Table 15. Checklist for Spill Control and Response*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Oil Transfer Operations** | |
| S.9. 33 CFR 155 and 156 and NC Instruction 5100.1B require that proper procedures, precautions and preparations have been taken prior to transfer of fuel oil to reduce the potential for spills. | Verify that written oil transfer procedures have been posted and are used by crew members in accordance with section 9-2.2.1 of NC Inst. 5100.1B.<br><br>Verify that oil transfer personnel have been properly designated and trained in accordance with section 9-2.2.1 of NC Inst. 5100.1B.<br><br>Verify that approved equipment is employed during oil transfer operations including mooring lines, hoses, couplings, containment systems, communications systems, and emergency shutoff system in accordance with section 9-2.2.2 and 9-2.2.3 of NC Inst. 5100.1B.<br><br>Verify that personnel preparations are made prior to transferring fuel, including proper designation of fueling personnel, holding of a prefueling conference and proper completion of the declaration and inspection form in accordance with section 9-2.2.4 of NC Inst. 5100.1B. |
| S.10. 33 CFR 155.320 requires that vessels employ discharge containment equipment during oil transfer operations. | Verify that discharge containment equipment is installed and inspected prior to oil transfer operations in accordance with section 9-2.3 of NC Inst. 5100.1B. |
| **Spill Contingency Planning and Response** | |
| S.11. Regulation 26 of MARPOL Annex, and 33 CFR 151.26 require that vessels of 400 gross tons and above have in place a SOPEP. In implementing Regulation 26, NC Instruction 9540 extends this requirement to all NOAA Marine Centers, NOAA ships, and NOAA ship bases. The format for the plan is provided in the generic SOPEP of April 1995. | Verify that the SOPEP has been developed and is being maintained by the vessel.<br><br>For NOAA vessels of 400 gross tons, verify that Appendix F, Ship Specific Information, is being maintained, and is being updated within six months following a significant change in the ship s configuration or transfer of the ship to another Marine Center or ship base. |
| S.12. The NOAA SOPEP requires that vessel personnel be trained in spill response and hold periodic oil spill response exercises. | Verify that formal oil spill response training has been provided to the ship s Environmental Control Officer and Spill Response Team. Verify that personnel are receiving formal refresher training every two years.<br><br>Verify that oil spill mitigation drills are being held on a monthly basis. Verify that training exercises are being properly recorded in the ship s log with necessary entries of performance for exercises. Verify that these records are being retained for three years and made available during NOAA Fleet Inspections. |
| S.13. The NOAA SOPEP requires that an inventory of spill response equipment be maintained on board. | Verify that the equipment specified in the SOPEP is on board and in usable condition. Verify that this equipment is being inventoried and inspected quarterly. |

| *Table 15. Checklist for Spill Control and Response* | |
|---|---|
| ***REGULATORY REQUIREMENTS:*** | ***REVIEWER CHECKS:*** |
| S.14. Discharges of oil into or upon the navigable waters of the United States or adjoining shorelines or into or upon the waters of the contiguous zone or into areas that may affect natural resources belonging to, or under the exclusive management authority of the United States, must be reported (40 CFR 110.2 through 110.10). | Interview staff and review spill records to determine if the vessel has had any discharges of oil.<br><br>Verify that the National Response Center, Coast Guard and Marine Center were notified as soon as possible after discovery of a discharge.<br><br>Verify that appropriate response action was taken as directed in the SOPEP. |

### 5.5.1 RECORDS TO REVIEW

Procedures for Oil Transfer

Oil Record Book

SOPEP

Records of spill response training programs and exercises

Records of oil spill incidents and response operations

### 5.5.2 PHYSICAL FEATURES TO INSPECT

OWSs and alarms

OWHTs, sludge tanks, and shoreside discharge systems.

Oil transfer equipment (e.g., hoses, couplings, emergency shutoff valves)

Oil spill containment equipment used during fuel transfer operations)

Oil spill cleanup equipment

## 5.6 SUMMARY OF CHANGES AND ISSUES

The audits of 12 operating NOAA ships indicate that oil spill prevention requirements are being met. OWSs meeting the requirements of 33 CFR 155 are in place and being operated as prescribed by NC Instruction 5100.1B. Oil transfer procedures are properly documented and followed as required by NC Instruction 5100.1B and are included as part of the ships Standing Orders.

With regard to spill response, the vessels audited are generally aware of spill response procedures and have the necessary equipment for handling accidental spills. Records reviewed from past responses to accidental spills indicate that proper notification was made and appropriate cleanup actions taken. The standardization of oil spill contingency plans is an area that needs attention, along with the documentation of routine spill response training.

Oil spill contingency plans on the ships audited followed a variety of formats and were located in a number of different documents (e.g., stand-alone documents, part of Ship s Standing Orders, included in Environmental Compliance Plan). The primary mandate for having an oil spill contingency plan is Regulation 26 of MARPOL Annex I, which requires that all vessels over 400 gross tons have a SOPEP. The required content and format for the SOPEP are provided by IMO/MEPC 32/20, Annex 4, Guidelines for the Development of Shipboard Oil Spill Emergency Plans. To further specify and standardize the format, ONCO has issued a generic SOPEP for the NOAA fleet (April 1995). However, the implementing instruction for this format (NC Instruction 9540), which also extends the requirement to all ships in the NOAA fleet, has never been formally promulgated. Implementation of the NOAA SOPEP format would bring NOAA vessels into full compliance with Regulation 26. This issue should be resolved.

During the audit the question was raised as to whether combining the oil spill contingency plan into an integrated oil and hazardous substances contingency plan was advisable. While there is nothing that would preclude NOAA from adopting this approach as an internal NOAA practice (as long as the oil spill provisions meet Regulation 26 of MARPOL I), there does not appear to be a specific advantage to doing so. Regulation 26 requires a document entitled the Shipboard Oil Pollution Emergency Plan. In view of this, the SOPEP should be maintained as a separate, identifiable document, or at least a separate, stand-alone section of an integrated spill contingency plan.

In addition, a regular oil spill response training and drill program should be instituted on NOAA ships, with formal training records maintained by the ship s ECO, and drills noted in the Ship s Log.

# 6.0 MANAGEMENT OF ENVIRONMENTAL IMPACTS ENVIRONMENTAL COMPLIANCE PROTOCOL

Federal environmental impact legislation applies broadly to Federal facilities and Federal actions (including actions aboard vessels). The collective intent of these laws and regulations is the protection of human health and the environment, including the protection and management of natural resources such as the physical media (air, soil, and water) and biological components of ecosystems; protected habitats (e.g., wetlands); endangered and threatened species; and commercial and recreational fisheries. Normally, impact to these resources, habitats and species is precluded or mitigated by adherence to the other provisions found throughout this protocol. This section addresses the environmental impacts that are not otherwise covered and which are unique to vessel operations.

## 6.1 FEDERAL LEGISLATION AND REQUIREMENTS

The National Environmental Policy Act (NEPA) is the centerpiece of broad-based environmental regulations. This act, with its implementing EO (EO11514), requires Federal entities to evaluate their impacts prior to pursuing certain activities. In addition, there are two pieces of Federal legislation designed to protect the endangered or marine species and their environments. All of these requirements could impact environmental compliance on NOAA vessels.

### 6.1.1 THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The purpose of this Act (42 US Code (USC) 4321-4370c), as last amended in November 1990, is to declare and implement a national policy to prevent or eliminate damage to the environment and biosphere and to stimulate the health and welfare of humans (42 USC 4321). Its underlying intent is to encourage productive and enjoyable harmony between humans and their environment. Under NEPA, the continuing policy of the Federal Government is to use all practicable planning, policy, and regulatory means and measures in a manner calculated to foster and promote the general welfare; to create and maintain conditions under which humans and nature can exist in productive harmony; and to fulfill the social, economic, and other needs of present and future generations of Americans (42 U.S.C. 4331(a)). Under NEPA and related laws, it is the continuing responsibility of the Federal Government to manage, monitor, and preserve the important historic, cultural, and natural aspects of our national heritage (42 USC 4331(b)(4)).

### 6.1.2 EXECUTIVE ORDER (EO) 11514, PROTECTION AND ENHANCEMENT OF ENVIRONMENTAL QUALITY

This EO, issued on 5 March 1970 and amended by EO 11991 (which was issued on 24 May 1977), is a Presidential order which implements NEPA. Under this EO, the Federal Government must provide leadership in protecting and enhancing the quality of the nation's environment to sustain and enrich human life. Federal agencies must direct their policies, plans, and programs so as to meet national environmental goals.

### 6.1.3 THE ENDANGERED SPECIES ACT (ESA) OF 1973

The purpose of this Act (16 USC 1531-1547 et al., last amended in October 1988) is to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved; to provide a program for the conservation of such endangered species and threatened species; and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions for protection of endangered species (16 USC 1531(b)). Under ESA, the policy of Congress is that all Federal departments and agencies must seek to conserve endangered species and threatened species and must use their authorities in furtherance of the purposes of this Act. In addition, Federal agencies must cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species (16 USC 1531(c)).

### 6.1.4 THE MARINE MAMMAL PROTECTION ACT (MMPA)

This Act (PL 95-522; 16 USC 1361) prohibits the illegal taking of marine mammals, regardless of whether or not they are protected under the ESA. Although the taking issue may not be directly applicable to normal NOAA vessel activities, vessels should be aware of the possible effects on marine mammals, and ensure that these effects are monitored when appropriate and mitigated to the fullest extent practicable.

### 6.1.5 MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972 (MPRSA)

This Act (PL 92-532, 33 USC 1401 and 1431) implements the provisions of international conventions on ocean dumping and marine pollution to which the United States is a signatory. Title I of the MPRSA prohibits ocean dumping of solid, hazardous, medical, and radioactive wastes without a permit. Title III of the MPRSA provides for the establishment of national marine sanctuaries that are afforded special protection and management programs.

## 6.2 STATE AND LOCAL REGULATIONS

Many states have laws and regulations comparable to Federal laws such as NEPA, ESA, and Section 404 of the CWA, which are equally or more stringent than these Federal laws. Under such State laws, additional or overlapping requirements may pertain to actions of Federal agencies and facilities potentially affecting ecological resources such as physical media, wetlands, protected species and their habitats, and other categories of flora and fauna. Such examples of State requirements include, but are not limited to:

Lists of protected plant and animal species, considered rare, threatened, or endangered at the State level, even if they are not listed as Federally protected species under ESA; and

Regulations and Management Practices (MPs) for the protection of surface waters, coastal zones, wetlands, and the prevention of nonpoint source pollution.

## 6.3 KEY COMPLIANCE REQUIREMENTS

Compliance with management of environmental impacts involves avoiding damage to endangered and threatened species, controlling noise from operations and planning to prevent pollution. Each of these requirements is described below.

### 6.3.1 ENDANGERED AND THREATENED SPECIES

Pursuant to both NEPA (40 CFR 6.108 and 6.302) and the ESA (16 USC 1531 et seq.; 33 CFR 230.25), Federal agencies and facilities must consider their potential impacts to Federal- and State-listed endangered/threatened plant or animal species, and their habitats.

### 6.3.2 ENVIRONMENTAL NOISE

NEPA requirements for impact assessment and mitigation include noise effects on humans and the environment. Other Federal laws regulating the management and mitigation of noise impacts are the Noise Control Act of 1972 (NCA) and the Aviation Safety and Noise Abatement Act of 1979 (ASNAA). Noise effects on wildlife and, in particular, on animal species protected under the ESA and MMPA are also critical elements of any NEPA review or document.

### 6.3.3 POLLUTION PREVENTION PLAN

A pollution prevention plan is a facility-specific plan for the control, prevention, and reduction of pollution releases and off-site transfers of toxic chemicals, as required of all Federal agencies by EO 12088, EO 12856, the Pollution Prevention Act, and related Federal laws/regulations. Pollution prevention strategies for NOAA vessels are reflected in the Marine Center plans.

## 6.4 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable international, Federal, State, local and agency requirements. The topics addressed in the audit will vary slightly depending on specific conditions and activities on the ship. Table 16 presents guidance for the protocol checklist related to environmental impacts. Table 17 functions as the protocol checklist for this portion of the audit.

As part of the audit, the team must review appropriate records and inspect physical locations on the vessel. Section 6.4.1 lists records to review related to environmental impacts, and Section 6.4.2 lists the physical features to inspect of the vessel.

## *Table 16. Guidance on Environmental Impacts Checklist*

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO* | |
|---|---|---|
| | *CHECKLIST ITEMS* | *PAGE NUMBERS* |
| All Vessels | IMP.1 through IMP.3 | 6-4 |
| Noise | IMP.4 | 6-5 |
| Marine Mammal Protection | IMP.5 | 6-5 |
| Marine Sanctuary Protection | IMP.6 | 6-5 |

## *Table 17. Checklist for Environmental Impacts Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **All Vessels** | |
| IMP.1. Review the current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions. (A finding under this checklist item will have the enforcement action/identifying information as the citation.) | Determine if noncompliance issues, pertaining to any of the following compliance or resource categories, have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements or equivalent State enforcement actions.<br><br>For those open items, indicate what corrective action is planned and milestones established to correct problems. |
| IMP.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding, unless it is a best management practice.) | Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards.<br><br>Determine if the vessel has activities or facilities that are Federally regulated but not addressed in this checklist.<br><br>Verify that the vessel is in compliance with all applicable and newly issued regulations. |
| IMP.3. All vessels are required to abide by State and local regulations concerning prevention of pollution impacts to natural resources (EO 12088, Sect. 1-1; 16 USC 1531(c)). | Verify that the vessel is abiding by State and local requirements pertaining to environmental impacts on natural resources.<br><br>Verify that the vessel is operating according to impact prevention, mitigation, and monitoring conditions of permits issued by State or local agencies. |

## *Table 17. Checklist for Environmental Impacts Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| ***Noise*** | |
| IMP.4. Vessels are required to abide by Federal, State and local regulations concerning environmental noise (EO 12088, Sect. 1-1; 42 USC 4901-4918). | Verify that the vessel is abiding by Federal, State, and local noise control requirements. |
| ***Marine Mammal Protection*** | |
| IMP.5. The Marine Mammal Protection Act (MMPA) prohibits the illegal taking of marine mammals, deliberate or incidental, irrespective of whether or not they are protected under the Endangered Species Act (16 U.S.C. 1361). | Determine if vessel operations in the marine environment may have caused any adverse effects to marine mammals.<br><br>Assess the adequacy of marine mammal impact prevention and mitigation measures in complying with the provisions of the MMPA. Such measures should include:<br><br>- Maintaining a safe distance from marine mammals sighted while underway (suggested distance is 500 yards for whales, 100 yards for marine mammals in general).<br>- Proceeding at slowest safe speed when passing through marine mammal citical habitats.<br>- Posting a lookout who has been trained in marine mammal identification when passing through marine mammal critical habitats and areas where marine mammals have been sighted. |
| ***Marine Sanctuary Protection*** | |
| IMP.6. The Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) regulates ocean dumping and marine pollution and provides for the establishment of national marine sanctuaries that are afforded special protection and management programs. | Verify that the vessel does not dispose of solid, hazardous, medical, or radioactive wastes in the ocean, except as approved through, and in compliance with, various international (MARPOL), and Federal regulations.<br><br>Verify that any vessel conducting operations in areas that potentially affect a marine sanctuary protected under the National Marine Sanctuary Program adheres to the MPRSA regulations protecting these ecosystems (15 CFR 922-923). Verify that appropriate mitigation measures are taken. |

### 6.4.1 RECORDS TO REVIEW

Any existing Environmental Impact Documentation (e.g., NEPA documents) for vessels

Federal/State lists of protected plant and animal species

Notices of Violations (NOVs) for air/water emissions (as noted under other sections)

Pollution Prevention Plans (for the Marine Center)

Vessel log entries involving impacts on marine mammals or endangered species.

### 6.4.2 PHYSICAL FEATURES TO INSPECT

None

## 6.5 SUMMARY OF CHANGES AND ISSUES

Protocol Item IMP. 5 has been modified to reflect current Coast Guard practice to ensure marine mammals (and specifically right whales) are not endangered by shipboard operations. The Coast Guard has instituted these changes as the result of a recent lawsuit regarding alleged Coast Guard interference with right whales.

# 7.0 HAZARDOUS MATERIALS MANAGEMENT ENVIRONMENTAL COMPLIANCE PROTOCOL

This section addresses the proper storage and handling of chemicals and the spill contingency and response requirements related to hazardous materials. Asbestos, oil, and pesticides are hazardous materials that require special management practices aboard ship; they are addressed in Sections 1.3, 5.3, and 10.0 respectively. The general category of wastes containing hazardous materials is also covered in Section 4.0 of this protocol. This section does not focus on individual hazardous chemicals or substances used but deals with the general requirements and Management Practices (MPs) associated with handling hazardous materials and preventing spills or releases of hazardous materials because of improper storage and handling. Specific guidance on the handling of hazardous materials aboard NOAA vessels is contained in NC Instructions 5100.1B, NC Instruction 6280, and the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual.*

## 7.1 FEDERAL LEGISLATION

### 7.1.1 THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

This Act, last amended in November 1990 (29 U.S. Code (USC) 651-678), is a Federal statute that governs the issues related to occupational safety and health. The purpose and policy of this Act are to assure every working man and woman in the nation safe and healthful working conditions and to preserve our human resources by, among other things, describing the nature of the occupational safety and health, providing for the development and publication of occupational safety and health standards, and enforcing safety and health programs and reporting procedures (29 U.S.C. 651(b)(9)(10)(12)). Although OSHA does not directly apply to Federal employees under the Act itself, EO 12196 makes the intent and provisions of OSHA applicable to Federal employees. Regulations implementing OSHA that pertain to the handling, storage, and labeling of hazardous materials are contained in 29 CFR 1910.

### 7.1.2 THE HAZARDOUS MATERIALS TRANSPORTATION ACT OF 1975

This Act, as last amended in November 1990 (49 USC 1801-1819, et al.), is the Federal legislation that governs the transportation of hazardous materials in the nation. The policy of Congress is to improve the regulatory and enforcement authority of the Secretary of Transportation to protect the nation adequately against the risks to life and property inherent in the transportation of hazardous materials in commerce (49 USC 1801).

### 7.1.3 CLEAN WATER ACT OF 1977

The Clean Water Act addresses reporting requirements and response to spills of hazardous substances into navigable waters. In accordance with the CWA, EPA has published a list designating reportable quantities of hazardous substances when they are spilled into water. The list has

approximately 1,200 entries, and the maximum that may be spilled without reporting varies from one pound to 5,000 pounds, depending on the degree of hazard represented by the spilled substance.

### 7.1.4 THE NATIONAL FIRE CODE, FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE NFPA 30

This code prohibits the storage of Class I and Class II liquids in plastic containers in general-purpose warehousing.

### 7.1.5 HAZARDOUS SHIPS STORES (46 CFR 147)

The regulations in 46 CFR 147, Subpart B prescribe the stowage and other special requirements for particular materials, and apply to all vessels listed in 46 USC 3301 as subject to inspection by the Coast Guard under part B of 46 U.S.C. As NOAA ships are not included as inspected vessels, that are inspected by the Coast Guard, requirements of 46 CFR 147 do not strictly apply to the NOAA Fleet. However as hazardous ships stores are defined as ships stores that are hazardous materials, many of the provisions of 46 CFR 147 are more relevant to NOAA vessels than many of the provisions of 29 CFR 1910. As such, it is recommended that they be adopted as good management practice. They have been integrated into the specific protocol items derived from 29 CFR 1910.

Specific hazardous materials addressed in 46 CFR 147 that were observed aboard NOAA ships include:

Flammable and combustible liquids

Compressed gases

Acetylene

Oxygen

Explosives

### 7.1.6 OCEANOGRAPHIC RESEARCH VESSELS - CONTROL OF EXPLOSIVES AND OTHER HAZARDOUS MATERIAL (46 CFR 194)

The provisions contained in 46 CFR 194 are part of Subchapter U of 46 CFR which addresses the design and construction requirements for oceanographic research vessels, and special operational requirements including the handling, use, and control of explosives and other dangerous articles or substances. These requirements do not formally apply to NOAA oceanographic research vessels as public vessels as specified in 46 CFR 188.05. However, as with 46 CFR 147, many of the provisions of 46 CFR 194 are just as relevant to NOAA vessels as the provisions of 29 CFR 1910. As such, it is recommended that they be adopted as good management practice. They have been integrated into the specific protocol items derived from 29 CFR 1910.

Specifically 46 CFR 194 addresses the following topics:

Stowage and Marking of Explosives and Hazardous Materials

Magazines for Explosives Storage

Stowage and Handling of Hazardous Materials in Chemistry and Scientific Laboratories

Chemical Stores and/or Storerooms

Many of the requirements in 46 CFR 194 reference back to requirements in 46 CFR 172, 173, 176 and Subchapter N (46 CFR 147).

## 7.2 STATE AND LOCAL REGULATIONS

Hazardous materials may be regulated on the State level as well as by local agencies (county/city fire departments) which may require flammable/combustible materials to meet certain storage requirements. Usually, these local ordinances will follow the National Fire Protection Association (NFPA) Fire Protection Guide on Hazardous Materials (Pamphlets 325A, 325M, 49, 491F, and 704M).

## 7.3 KEY COMPLIANCE REQUIREMENTS

Compliance requirements associated with hazardous materials management relate to maintaining information on the hazardous chemicals on board, training ship s personnel in the safe use and handling of the chemicals, and storage of hazardous or flammable chemicals, compressed gases, and acids.

### 7.3.1 PLANNING AND DOCUMENTATION

Vessels must maintain a master listing of hazardous materials and their storage sites. Vessels are required to have a Material Safety Data Sheet (MSDS) on file for each hazardous chemical it stores and uses (29 CFR 1910.1200(b) and 1910.1200(g)).

### 7.3.2 PERSONNEL TRAINING

Vessels are required to provide all shipboard personnel with written information about the hazardous chemicals to which they are exposed. Personnel who work with hazardous materials are required to be trained in the use of and potential hazards of such materials. All personnel and supervisors working on sites exposed to hazardous materials or other hazards are required to be trained before engaging in these activities (29 CFR 1910.1200).

### 7.3.3 HAZARDOUS MATERIALS IN LABORATORIES

Vessels that use hazardous chemicals in laboratories are required to have a Chemical Hygiene Plan, which is reviewed annually. Such vessels are also required to provide employees with information and training about the hazardous chemicals in their work areas. Records about the exposure of employees are to be kept as medical records (29 CFR 1910.1450(e), 1910.1450(f), 1910.1450(h), 1910.1450(j), 46 CFR 194.15).

### 7.3.4 HAZARDOUS MATERIALS STORAGE

Containers for hazardous chemicals are required to be labeled or tagged with the identity of the substance and with appropriate warning markings. Areas where hazardous materials are stored or used aboard the vessel are required to be kept free from accumulations of materials that create a hazard, such as leaking containers, or placement of containers in a manner that would create hazards such as tripping, fire, or pests. Substances that together may create a fire hazard (such as oxygen gas cylinders near acetylene gas cylinders) must separated (29 CFR 1910.176(c), 1910.1200(b) and 1910.1200(f), 46 CFR 146 AND 46 CFR 194).

### 7.3.5 STORAGE OF FLAMMABLES/COMBUSTIBLES

In general, containers of flammable combustible liquids are to be stored and handled so as not to damage the container or label, block room exits, or create a fire hazard (29 CFR 1910.106(d), 46 CFR 147.45, 46 CFR 194.15-.20).

Storage cabinets are to be fire resistant and labeled FLAMMABLE - KEEP FIRE AWAY. No more than 60 gallons (227.12 L) of Class I or Class II liquids, and no more than 120 gallons (454.23 L) of Class III liquids can be stored in a cabinet (29 CFR 1910.106(d)(3)).

### 7.3.6 COMPRESSED GASES

Regardless of where the cylinders are stored, NO SMOKING signs should be posted and actions taken to prevent fire. Compressed gases are required to be stored according to the Compressed Gas Association Pamphlet P-1-1965 (29 CFR 1910.101, 46 CFR 147.60, 46 CFR 194.15-.20).

### 7.3.7 ACID STORAGE

Bulk storage of acids should be in compartments with ventilation. Safety equipment and fire protection must be available.

## 7.4 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable international, Federal, State, local and agency requirements. The topics addressed in the audit will vary slightly depending on specific conditions and activities on the ship. Table 18 presents guidance for the protocol checklist related to hazardous materials management. Table 19 functions as the protocol checklist for this portion of the audit.

As part of the audit, the team must review appropriate records and inspect physical locations on the vessel. Section 7.4.1 lists records to review related to hazardous materials management, and Section 7.4.2 lists the physical features to inspect of the vessel.

***Table 18. Guidance on Hazardous Materials Management Checklist***

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO* | |
|---|---|---|
| | *CHECKLIST ITEMS* | *PAGE NUMBERS* |
| All Vessels | HM.1 through HM.3 | 7-6 |
| Hazardous Materials Accountability and Control | HM.4 through HM.9 | 7-6 to 7-8 |
| Personnel Training | HM.10 - HM.11 | 7-8 |
| Hazardous Materials in Laboratories and Storerooms | HM 12 through HM.17 | 7-9 to 7-11 |
| Releases of Hazardous Materials | HM.18 - HM.19 | 7-11 |
| Flammable/Combustible Liquids | HM.20 - HM.27 | 7-11 to 7-14 |
| Explosives | HM.28 - HM.29 | 7-14 to 7-15 |
| Compressed Gas Storage | HM.30 - HM.33 | 7-15 to 7-16 |
| Hazardous Materials Transportation | HM.34 - HM.37 | 7-16 |
| Radioactive Materials | HM.38 | 7-16 |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **All Vessels** | |
| HM.1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/identifying information as the citation.) | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements or equivalent State enforcement actions.<br><br>For those open items, indicate what corrective action is planned and milestones established to correct problems. |
| HM.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards.<br><br>Determine if the vessel has activities or facilities which are Federally regulated, but not addressed in this checklist.<br><br>Verify that the vessel is in compliance with all applicable and newly issued regulations. |
| HM.3. Vessels are required to abide by State and local regulations concerning hazardous materials (EO 12088, Section 1-1). | Verify that the vessel is abiding by State and local requirements.<br><br>***NOTE:*** Issues typically regulated by State and local agencies include:<br>- transportation of hazardous materials<br>- notification requirements<br>- response plan requirements<br>- spill response requirements |
| **Hazardous Material Accountability and Control** | |
| HM.4 NC Instruction 6280B requires that the commanding officer of NOAA vessels designate, in writing, the official responsible for hazardous materials aboard ship. | Verify that an official has been designated and that the letter of designation has been posted in the persons s personnel folder and a copy forwarded to the NC Program Services Division and the cognizant Regional Safety Manager. |
| HM.5 NC Instruction 6280B requires that hazardous materials aboard ship be properly inventoried and stored, and properly segregated. | Verify that hazardous materials are being inventoried on a quarterly basis and that inventories include the type and amount of each hazardous material. These inventories must be retained for a period of three years.<br><br>Verify that hazardous materials are segregated in accordance with Supplement #6 of NC Instruction 6280B. |
| HM.6 NC Instruction 6280B specifies that the amount of hazardous materials carried aboard NOAA vessels should be kept to a minimum. | Verify that hazardous materials are only carried aboard the vessel when the commanding officer has determined that a nonhazardous substitute is not available, and that the hazardous material is necessary for completion of the mission. |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| HM.7. Vessels are required to have on file an MSDS for each hazardous chemical stored and used on the vessel. (29 CFR 1910.1200(b)(3)(ii), 1910.1200(b)(4)(ii), 1910.1200(b)(6), 1910.1200(g)(1) and 1910.1200(g)(8)). Also NC Instruction 6280B. | Verify that an MSDS for each hazardous material used or stored aboard ship is placed in a binder with the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual*. The manuals and most recent inventories are to be maintained in a location accessible to all personnel who may be exposed to hazardous material. |
| HM.8. Containers of hazardous chemicals in the workplace are required to be labeled, tagged, or marked with specific information (29 CFR 1910.1200(b)(3)(i), 1910.1200(b)(4)(i), 1910.1200(b)(5), 1910.1200(f)(5) through 1910.1200(f)(7)). Also NC Instruction 6280B. | Verify that all containers of hazardous chemicals in the workplace are labeled with the following information:<br>- Identity of the hazardous chemical<br>- Appropriate hazard warnings<br>- Name and address of the manufacturer, importer, or other responsible party<br><br>***NOTE:*** Portable containers into which hazardous chemicals are transferred from labeled containers and which are intended only for the immediate use of the employee who performs the transfer are not required to be marked. |
| HM.9. Specific housekeeping requirements must be met in areas where hazardous materials are stored (29 CFR 1910.176(c)). | Verify that areas where hazardous materials are stored and/or used aboard ship are free from accumulations of materials that create a hazard from tripping, fire, explosion, or pest harborage.<br><br>***NOTE:*** The following are suggested housekeeping practices:<br>- Drums/containers are not leaking and are tightly sealed.<br>- Drip pans and/or absorbent material are placed under containers.<br>- Dispensing areas are located away from catch basins and storm drains. |
| **Personnel Training** | |
| HM.10. Vessels are required to have a written hazard communication program that is designed to provide all shipboard personnel with information about the hazardous chemicals to which they are exposed (29 CFR 1910.1200(b)(6), 1910.1200(e)(1)). Also NC Instruction 6280B. | Verify that there is a written hazard communication program that contains:<br>- A description of how general training will be done to inform shipboard personnel of issues such as MSDSs and hazardous materials labels and other warning signs<br>- A list of the hazardous chemicals known to be present (can be done for the entire vessel or individual work areas)<br>- A description of the methods the vessel will use to inform the shipboard personnel of the hazards associated with nonroutine tasks<br>- A list of the other contract employees and visiting scientists with access to MSDSs for each hazardous chemical they may be exposed to while working |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| HM.11. Personnel working with hazardous materials are required to be trained in their use and the potential hazards of such materials (29 CFR 1910.1200(b)(3)(iii), 1910.1200(b)(4)(iii), 1910.1200(b)(6), and 1910.1200(h)). | Verify that personnel are provided with information and are trained on hazardous chemicals in their workplace at the time of initial assignment and whenever a new hazard is introduced into the workplace.<br><br>Verify that employees are informed of the following:<br>- Any operations in their work areas where hazardous chemicals are present<br>- The location and availability of the written hazard communication program, including the required lists of hazardous chemicals and MSDSs<br><br>Verify that training includes:<br>- Methods and observations for use in detecting a release<br>- The physical and health hazards of the chemicals in the work areas<br>- Protective measures and procedures to use<br>- The details of the hazard communication program developed by the vessel, including an explanation of the labeling system, MSDSs, and direction on how employees can obtain and use the appropriate hazard information |
| **Hazardous Materials in Laboratories and Storerooms** | |
| HM.12. Vessels engaged in the laboratory use of hazardous chemicals (see definitions) are required to have a Chemical Hygiene Plan (29 CFR 1910.1450(e)). | Verify that a written Chemical Hygiene Plan exists and is:<br>- Capable of protecting personnel from health hazards associated with hazardous chemicals in the laboratory<br>- Capable of keeping exposure to regulated substances below required limits.<br><br>Verify that the plan is readily available to employees and employee representatives.<br><br>Verify that the plan includes the following elements and indicates specific measures to be taken when laboratory work involves the use of hazardous chemicals:<br>- Standard operating procedures relevant to safety and health considerations to be followed<br>- Criteria that will be used to determine and implement control measures to reduce personnel exposure to hazardous chemicals including the engineering controls, the use of personal protective equipment, and hygiene practices<br>- A requirement that fume hoods and other protective equipment are functioning properly and specific measures are taken to ensure proper and adequate performance of the equipment<br>- Provisions for personnel information and training<br>- Circumstances and situations that require prior approval from a designated individual<br>- Provisions for medical consultations and medical exams<br>- Designation of individuals responsible for the implementation of the plan<br>- Assignment of a Chemical Hygiene Officer and, if appropriate, establishment of a Chemical Hygiene Committee |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| HM.12. (Continued) | - Provisions for additional personnel protection when working with particularly hazardous substances, including select carcinogens, reproductive toxins and substances that have a high degree of acute toxicity. Provisions might include:<br>-- establishment of a designated area<br>-- use of containment devices such as fume hoods or glove boxes<br>-- procedures for safe removal of contaminated waste<br>-- decontamination procedures.<br><br>Verify that the plan is reviewed annually and updated as needed. |
| HM.13. Facilities engaged in the laboratory use of hazardous chemicals (see definitions) are required to maintain specific records (29 CFR 1910.1450(j)). | Verify that records of monitoring for employee exposure are maintained along with any medical records or test results. |
| HM.14. NC Instruction 6280B requires that visiting scientific parties bringing hazardous materials aboard ship properly notify the vessel of the nature, quantity and hazards associated with these materials; and provide MSDSs and spill cleanup materials for spills. | Verify that visiting scientific parties provide the vessel with the following information 60-90 days in advance of the departure date:<br>- a list of hazardous materials to be brought on board by name and quantity<br>- a list of neutralizing agents, buffers, and/or absorbents required to deal with spills of these materials.<br><br>Verify that scientific parties are providing an MSDS for each hazardous material and neutralizing agent, buffer, and/or absorbent required to deal with spills of these materials. |
| HM.15. NC Instruction 6280B requires that scientific parties promptly remove, or arrange for the removal of, all hazardous materials upon completion of the cruise. | Verify that the visiting scientific party has prepared and submitted inventories to the commanding officer upon completion of each cruise, showing that all hazardous materials brought aboard have been depleted or removed as an unused but usable product.<br><br>Verify that the scientific party has removed or arranged for the removal of all hazardous waste resulting from the use of these hazardous materials. |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| HM.16. Chemistry and scientific lab spaces should meet the requirements of 46 CFR 194.15 as good management practice. | Verify that provisions are made for the containment and rapid removal of spills and protection of decks from chemical spills.<br><br>Verify that proper ventilation is provided for laboratory spaces including fume hoods and power ventilaton systems for the entire lab. Ensure that power ventilation systems vent to the outside and not to other spaces.<br><br>Verify that a fixed or semiportable fire extinguishing system is installed, or that portable fire extinguishers are available.<br><br>Verify that only small working quantities of chemicals are kept in labs. Larger quantities should be stowed in the the chemical storeroom. Verify that all chemicals in the lab are secured for sea with due consideration to chemical compatability and safety standards.<br><br>Verify that labs are equipped with required flushing showers and eyewash stations.<br><br>Verify that when compressed gases are required in the lab, only one cylinder of each gas is in the lab at one time. Cylinders shall be properly secured for sea with appropriate safety signs and precautions in place. |
| HM.17. Storerooms used for chemical storage should meet the requirements of 46 CFR 194.20 as good management practice. | Verify that provisions are made for the containment and rapid removal of spills and protection of decks from chemical spills.<br><br>Verify that power ventilation systems are provided, capable of providing a complete change of air in four minutes, and independent of other ventilation systems. Provisions should be made to allow ventilation of the chemical storeroom before entry.<br><br>Verify that a fixed fire extinguishing system is in place and/or portable fire extinguishers are immediately available.<br><br>Verify that items are securely stored with consideration to chemical compatability and safety standards. Items should not be stored on deck, and shelving should provide four inches of clear space between deck and botton shelf.<br><br>Verify that if provisions are made for flushing chemical spills, installed drainage system should be separate from other ship s drainage systems.<br><br>Verify that flammable liquids in excess of five gallons, and combustible liquids in excess of 55 gallons, and explosives and oxidizers are not stored in chemical storerooms. Containers used for dispensing flammable and combustible liquids must have automatic closing valves.<br><br>Nonflammable compressed gases (excluding oxygen) may be stored in the storeroom. Verify that no more than eight compressed gas cylinders are stored in the storeroom. Cylinders must be stowed in the vertical position, in racks, with protective caps in place. |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Release of Hazardous Materials** | |
| HM.18. NC Instruction 6280B specifies that spills of hazardous materials that exceed EPA reportable quantities be immediately reported to the Director, NOAA Corps, and the National Response Center and that proper response actions have been initiated. | Verify that ship s personnel are aware of the requirement that proper notification be made for any reportable quantity spills that may occur.<br><br>Verify that any spills that have occurred have been properly reported and cleaned up. |
| HM.19. Absorbent materials should be available for spill and/or release cleanup in areas where hazardous materials are used or stored (MP). | Verify that absorbent materials are available for spill cleanup. |
| **Flammable/Combustible Liquids** | |
| HM.20. Specific management practices should be considered when storing and handling flammable/ combustible materials (MP). | Verify that the following management practices are followed:<br>- Items are not stored against pipes or coils producing heat.<br>- Aerosol containers are stored in well-ventilated areas. |
| HM.21. Drums and other containers of less than 60 gal (227.12 L) individual capacity and portable tanks less than 660 gal (2,498.37 L) individual capacity used to store flammable or combustible materials are required to meet specific standards (29 CFR 1910.106(d)(1) and 1910.106(d)(2)). | Verify that flammable and combustible liquid containers meet the constraints outlined in 29 CFR 1910.106(d)(2) Table H-12 except that glass or plastic containers of no more than 1-gallon (3.79-L) capacity may be used for a Class IA or IB flammable liquid if:<br>- The liquid would be rendered unfit for its intended use by contact with metal or would excessively corrode a metal container.<br>- The user's process either would require more than 1 pint (0.47 L) of a Class IA liquid or more than 1 quart (0.95 L) of a Class IB liquid of a single assay lot to be used at one time, or would require the maintenance of an analytical standard liquid of a quality that is not met by the specified standards of the liquids available, and the quantity of the analytical standard liquid required to be used in any one control process exceeds one-sixteenth of the capacity of the container allowed under 29 CFR 1910.106(d)(2) Table H-12 for the class of liquid.<br><br>Verify that each portable tank has one or more devices installed in the top with sufficient emergency venting capacity to limit internal pressure under fire exposure conditions to 10 psig or 30 percent of the bursting pressure of the tank, whichever is greater.<br><br>***NOTE:*** These standards do not apply to:<br>- Class I or Class II liquids in the fuel tanks of a boat or portable or stationary engine<br>- Flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days. |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| HM.22. Flammable or combustible liquids shall not be stored in ways that limit the use of exits, stairways, or areas normally used for the safe egress of people (29 CFR 1910.106(d)(5)(i)). | Verify that exits or common traffic routes are not blocked.<br><br>***NOTE:*** These standards do not apply to:<br>- Class I or Class II liquids in the fuel tanks of a boat, or portable or stationary engine<br>- Flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days. |
| HM.23. Flammable or combustible liquids shall be stored so as to reduce the fire hazard (46 CFR 147.5) | Verify that no flammable or combustible liquid may be stowed in any accomodation, control, or service space (other than a paint locker).<br><br>Verify that no more than 5 gallons (19 liters) of flammable liquids, or 55 gallons (208 liters) of combustible liquids are stored in any machinery space.<br><br>Verify that flammable and combustible liquids stored aboard ship, outside of a machinery space, in an aggregate quantity of 2 gallons are more, are stored in a paint locker marked with a warning sign (indicating flammable combustible liquid storage).<br><br>Verify that flammable and combustible liquids used as fuel for portable auxiliary equipment is stored in integral tanks, approved portable outboard containers, or other approved safety containers.<br><br>Verify that approved portable containers used for portable auxiliary equipment are stowed in a paint locker or open location on deck.<br><br>Verify that portable containers are being refilled from larger containers on a weather deck using appropriate safety precautions (drip pans used and fire extinquisher on hand). |
| HM.24. Storage cabinets used for the storage of flammable/ combustible liquids must meet specific requirements (29 CFR 1910.106(d)(3)). | Verify that storage cabinets meet the following:<br>- No more than 60 gallons (227.12 L) of Class I or Class II liquids nor any more than 120 gallons (454.23 L) of Class III liquids are stored in the cabinet.<br>- The cabinets are fire resistant.<br>- Cabinets are constantly closed and are conspicuously labeled *FLAMMABLE-Keep Fire Away.* |
| HM.25. Storage cabinets used for the storage of flammable/ combustible liquids should meet specific requirements (MP). | Verify that storage cabinets meet the following:<br>- Materials within the cabinet are segregated.<br>- There are no open containers within the cabinet.<br>- All containers in the cabinet are labeled. |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| HM.26. NC Instruction 5100.1B requires that all gasoline storage containers must be mounted so that they can be quickly and safely released by a remote jettisoning mechanism. Small gasoline cans must be stored in remote jettison racks. | Verify that gasoline containers are properly stored.<br><br>Verify that remote jettisoning mechanisms are inspected, lubricated, exercised and tested on a quarterly basis. Check to see that tests have been properly logged. |
| HM.27. Areas where flammable/ combustible materials are stored must meet certain fire protection standards (29 CFR 1910.106(d)(7)). | Verify that all flammable/combustible storage locations meet the following:<br><br>- There is at least one 12-B rated portable fire extinguisher located outside and within 10 feet ((3.05 m) of a door opening into any compartment for storage.<br>- There is at least one 12-B rated portable fire extinguisher located within 10 to 25 feet (3.05 to 7.62 m) of any Class I or Class II liquid storage area outside of a storage room, but aboard ship<br>- Fire extinguishing sprinklers or systems meet the standards in 29 CFR 1910.159.<br>- No smoking or open flame is permitted within 50 feet (15.24 m) and signs are posted.<br>- Incompatible materials are not stored together (see 40 CFR 264 Appendix V).<br>- No water reactive materials are stored in the same room with flammable/combustible liquids.<br><br>***NOTE:*** These standards do not apply to:<br>- Class I or Class II liquids in the fuel tanks of a boat, or portable or stationary engine<br>- Flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days. |
| **Explosives** | |
| HM.28. Explosives must be stored in a magazine constructed and located in accordance with 46 CFR 176.135 through 49 CFR 159. | Verify that explosives are stored in a magazine constructed and located in accordance with 49 CFR 176.135 through 49 CFR 159.<br><br>Specifically:<br>- All small arms ammunition must be stowed in a locked metal magazine or locker.<br>- Explosive ship s signals and emergency equipment, including pyrotechnic distress signals and line-throwing equipment, must be stowed in watertight container or wood-lined magazine chests, and in accordance with 49 CFR 176.83. |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| HM.28. (Continued) | Magazines observed aboard NOAA ships are small lockers located on the weather decks. For such magazines, verify the following:<br>- Magazine chests and deck stowage areas shall be separated by 25 feet if their contents are incompatible.<br>- Stowage shall be in a location reasonably protected from the full force of boarding seas.<br>- Stowage shall be protected from direct exposure to the sun.<br>- On deck magazines shall be properly secured to the vessel if not permanently attached.<br>- Magazine Chests shall be clearly and conspicuously marked as such (e.g., *Magazine Chest - Keep Open Lights and Fire Away*). |
| HM.29. Explosives or hazardous materials must be properly marked in accordance with 46 CFR 172. | Verify that chemical stores that are explosives or hazardous materials are properly marked in accordance with 46 CFR 172. Hazardous materials include:<br><br>Flammable Liquids<br>Flammable Solids<br>Oxidizing Materials<br>Corrosive Materials<br>Compressed Gases<br>Poisons<br>Combustible Materials<br>Other Regulated Materials (DOT Hazard Class ORM )<br><br>***Note:*** Small quantities of these materials in reagent containers being used in the laboratory need not be fully marked, but should be labeled with the common chemical name and general hazard (e.g., flammable, poison). Reagent containers shall be properly secured against shifting and spillage. |
| **Compressed Gas Storage** | |
| HM.30. The onboard storage, handling, and utilization of all compressed gases in cylinders and portable tanks must be done according to the Compressed Gas Association Pamphlet P-1-1965 (29 CFR 1910.101) and provisions of NC Instruction 5100.1B and 46 CFR 147.60. | Verify that compressed gas cylinders and tanks have safety relief devices.<br><br>Verify that compressed gas is properly stored, specifically that:<br>- Cylinders are stored upright and secured in permanent racks<br>- Shaded or protected when stored on weather decks, and protected from all sources of heat which may cause cylinders to be heated to a temperature of over 130°F<br>- Cylinders are properly segregated<br>- Protective caps are in place<br>- Readily combustible materials are not stored in close proximity<br>- No smoking signs are posted in cylinder storage areas<br>- Cylinders do not show signs of corrosion<br>- Cylinders have been hydrostatically tested as required<br>- That no barbecue grill propane cylinders are stored below deck<br>- That lockers and housings containing compressed gas cylinders are vented with openings near the top and bottom for positive circulation of vapors |

## *Table 19. Checklist for Hazardous Materials Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| HM.31. NC Instruction 5100.1B prohibits the use and storage of propane aboard NOAA vessels with the exception of using small hand-held propane torches, or carrying propane tanks as deck cargo when required by a clearly identified project. | Verify that propane is not generally carried aboard the vessel.<br><br>Verify that hand-held propane torch fuel tanks are stowed in a well-ventilated flammable materials locker located on the weather decks.<br><br>If propane is carried for use in specific projects, verify that the quantity is limited to project needs, and that containers are securely stowed in well-ventilated deck containers or racks that can be easily jettisoned in an emergency. |
| HM.32. Handle ozygen tanks to comply with 46 CFR 147.85 | Verify that oxygen in amounts exceeding 300 standard cubic feet (85 cubic meters) is stored on deck or in a well-ventilated space. |
| HM.33. Handle acetylene tanks to comply with 46 CFR 147.70. | Verify that acetylene storage below decks is limited to 600 standard cubic feet (17 cubic meters); acetylene in excess of this quantity is stored above decks (on the weather decks). |
| **Hazardous Materials Transportation** | |
| ***NOTE:*** The regulations found in Title 49, Subchapter C of the CFR detail requirements for the transportation of hazardous materials. 49 CFR 171.1(c) stipulates that these requirements apply when materials are being transported in commerce. According to a representative from the Department of Transportation, commerce is defined in this instance in terms of making a profit; therefore, Subchapter C does not apply to Federal agencies when Government personnel are transporting hazardous materials in Government vehicles. However, the regulations do apply when transport is occurring in non-Government vehicles. | |
| HM.34. Shipping papers for hazardous materials are required to indicate the proper shipping name, hazard class, identification number, and quantities of materials (49 CFR 172.202). | Verify that the proper information is displayed on the shipping papers for the hazardous material. |
| HM.35. Each package or container shall be marked in accordance with specific marking requirements (49 CFR 171.3). | Verify that the commodity description (proper shipping name) as well as the following information is on the container:<br>- Exemption numbers for containers shipped under DOT exemptions<br>- The name and address of consignee (or consignor). |
| HM.36. The vessel should ensure that transportation of hazardous materials between the vessel and shoreside facilities is accomplished in accordance with good management practices to help ensure against spills, releases, and accidents (MP). | Determine if procedures exist to manage movement of hazardous materials between vessel and shoreside facilities.<br>Determine if transporting personnel are trained in spill control procedures.<br>Determine if provisions have been made for securing hazardous materials in vehicles when transporting. |

| *Table 19. Checklist for Hazardous Materials Management* | |
|---|---|
| ***REGULATORY REQUIREMENTS:*** | ***REVIEWER CHECKS:*** |
| HM.37. A vessel that offers for transport, accepts for transport, transfers, or otherwise handles a hazardous material must have emergency response information available (49 CFR 172.600 through 172.604). | Verify that emergency response information includes:<br>- The description of the hazardous material required by 49 CFR 172.202-203<br>- Immediate hazards to health<br>- Risks of fire or explosion<br>- Immediate precautions to take in the event of an accident or incident<br>- Immediate methods for handling small or large fires<br>- Immediate methods for handling spills or leaks in the absence of fire<br>- Preliminary first aid measures.<br><br>***NOTE:*** Shipping papers must contain an emergency response telephone number for the hazardous materials being shipped.<br><br>Verify that each vessel maintains this emergency response information. |
| **Radioactive Materials** | |
| HM.38. *The NOAA Fleet Hazardous Materials and Hazardous Waste Manual* specifies procedures for handling radioactive materials aboard NOAA vessels. | Determine if the vessel handles radioactive materials in fulfilling its operational mission.<br><br>Verify that radioactive materials are being handled, stored and monitored in accordance with Supplement #7 of *The NOAA Fleet Hazardous Materials and Hazardous Waste Manual.* |

### 7.4.1 RECORDS TO REVIEW

Hazardous substance spill contingency plan

Spill records

Emergency plan documents

MSDSs

Inventory records

Hazardous substance release reports

Shipping papers

Training records

Placarding of hazardous materials

Used oil storage sites

Hazard Communication (HazCom) plan.

### 7.4.2 PHYSICAL FEATURES TO INSPECT

Hazardous material storage areas

Shop activities

Shipping and receiving area

## 7.5 SUMMARY OF CHANGES AND ISSUES

In general, the auditors found that personnel aboard NOAA ships were aware of the requirements of NOAA Corps Instruction 6280, and were meeting these requirements in the handling and storage of hazardous materials. The most frequently encountered deficiencies involved recordkeeping, and particularly the maintenance of letters of designation for Hazardous Materials (HazMat) officers, quarterly HazMat inventories, and HazMat training records.

Many of the protocol items in this section were originally derived from 29 CFR 1910 which are OSHA requirements for workplace safey. In addition, there are a number of hazardous materials handling and storage requirements specific to vessels in 46 CFR 147 and 46 CFR 194 that are relevant to NOAA ships. Although NOAA ships as public vessels are not strictly bound by these provisions, many are directly relevant in practice and have been integrated into this section as good management practice.

In item HM.8, it is recommended that the lengthly note on items excluded from consideration be deleted. These items are generally not encountered on NOAA vessels.

Items HM.6 and HM.7 have been added to reflect the recommended good management practices in 46 CFR 194 for Scientific and Chemistry Lab Spaces and Chemical Storerooms on Oceanographic Vessels.

Item HM.23 has been modified to reflect the provisions of 46 CFR 147 and 46 CFR 194 with regard to Flammable and Combustible Liquids.

Item HM.32 and 33 have been modified to reflect the provisions of 46 CFR 147.60 with regard to Compressed Gases.

Items HM. 28 and HM.29 have been added to reflect the recommended good management practices in 46 CFR 147.95 and 46 CFR 194.10 for Explosives Storage and Magazines.

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# 8.0 DRINKING WATER MANAGEMENT ENVIRONMENTAL COMPLIANCE PROTOCOL

This section identifies requirements for the treatment, transfer, storage and monitoring of drinking water aboard NOAA vessels. These requirements are specified in NC Instruction 5100.1B and amplified Appendix D of the *NOAA Fleet Medical Policy Manual*, Handbook on Sanitation of Vessels in Operation (United States Public Health Service (USPHS) Pub. No. 68).

Facilities that meet all the criteria listed below are not covered by the National Primary Drinking Water Regulations promulgated under the Safe Drinking Water Act (SDWA) (40 CFR 141.3):

> The system consists only of distribution and storage facilities and does not have any collection and treatment facilities.
>
> The system gets all of its water from a public water system that is owned or operated by another party.
>
> The system does not sell water to any party.

Given these criteria, drinking water systems aboard smaller NOAA vessels which do not have onboard water treatment systems would not be subject to requirements of the SDWA.

## 8.1 FEDERAL LEGISLATION

The 1986 amendments and reauthorization [P.L. 99-339] to SDWA of 1974 (P.L. 93-523) required EPA to issue standards for 83 drinking water containments and to require monitoring of both regulated and unregulated containments in public water systems. Regulations promulgated under the SDWA and codified at 40 CFR 141 set maximum containment levels for public drinking water supplies. Under definitions contained in 40 CFR 141.2, larger vessels in the NOAA Corps fleet would meet the definition of a non-transient, non-community water system (NTNCWS) and would be subject to monitoring requirements for primary drinking water standards.

## 8.2 STATE AND LOCAL REGULATIONS

States have primary responsibility to enforce compliance with national primary drinking water standards and sampling, monitoring, and notice requirements in conformance with 40 CFR Part 141. EPA executes the enforcement responsibilities until individual State programs are approved.

States that have primacy may establish drinking water regulations, monitoring schedules and reporting requirements more stringent than, or in addition to, those in the Federal regulations. Generally speaking, most states who have primacy adopt drinking water regulations which closely reflect the Federal requirements. Some states also require certification of operators of public water

systems. Furthermore, some states require operators to receive approval of plans and specifications prior to constructing or modifying a public drinking water system.

## 8.3 KEY COMPLIANCE REQUIREMENTS

Compliance with drinking water management requirements involves ensuring that the ship s drinking water system is properly operated, disinfected and maintained and monitoring the drinking water quality on larger vessels.

### 8.3.1 FILLING HOSES, LINES AND CONNECTIONS

NC Instruction 5100.18 and Appendix D of the *NOAA Fleet Medical Policy Manual*, Handbook on Sanitation of Vessels in Operation (USPHS Pub. No. 68) specifies procedures for the marking, stowage and use of filling hoses and the configuration of filling lines and connections to ensure that ship s drinking water is not contaminated.

### 8.3.2 DISINFECTION

NC Instruction 5100.18 and Appendix D of the *NOAA Fleet Medical Policy Manual*, Handbook on Sanitation of Vessels in Operation (USPHS Pub. No. 68) specifies procedures for the disinfection of the ship s potable water system and potable water filling hoses.

### 8.3.3 MONITORING AND REPORTING

For larger NOAA Corps vessels which provide drinking water collected and treated on board to at least the same 25 people for six months a year, drinking water should be monitored for containments as required under the SDWA Subpart C (40 CFR 141.21 et seq.).

## 8.4 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable international, Federal, State, local and agency requirements. The topics addressed in the audit will vary slightly depending on specific conditions and activities on the ship. Table 20 presents guidance for the protocol checklist related to drinking water management. Table 21 functions as the protocol checklist for this portion of the audit.

As part of the audit, the team must review appropriate records and inspect physical locations on the vessel. Section 8.4.1 lists records to review related to drinking water management, and Section 8.4.2 lists the physical features to inspect of the vessel.

## *Table 20. Guidance on Drinking Water Management Checklist*

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO* | |
|---|---|---|
| | *CHECKLIST ITEMS* | *PAGE NUMBERS* |
| All Vessels | DW.1 through DW.3 | 8-3 |
| Hoses, Filling Lines and Connections | DW.4 through DW.5 | 8-4 |
| Inspection, Cleaning and Disinfection and Monitoring | DW.6 through DW.12 | 8-4 to 8-5 |

## *Table 21. Checklist for Drinking Water Management*

| *REGULATORY REQUIREMENTS* | *REVIEWER CHECKS* |
|---|---|
| **All Vessels** | |
| DW.1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/ identifying information as the citation.) | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements or equivalent State enforcement actions.<br><br>For those open items, indicate what corrective action is planned and milestones established to correct problems. |
| DW.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards.<br><br>Determine if the vessel has activities or equipment which are Federally regulated, but not addressed in this checklist.<br><br>Verify that the vessel is in compliance with all applicable and newly issued regulations. |
| DW.3. Vessels are required to comply with State and local drinking water regulations (EO 12088, Sect. 1-1 and 42 USC 300h-7(h)). | Verify that the vessel is abiding by State and local drinking water quality requirements.<br><br>Verify that the vessel is operating according to permits issued by the State or local agencies.<br><br>***NOTE:*** Issues typically regulated by State and local agencies include more stringent:<br>- Contaminant level requirements<br>- Certification and training requirements<br>- Water system surveys<br>- Reporting requirements |

## *Table 21. Checklist for Drinking Water Management*

| *REGULATORY REQUIREMENTS* | *REVIEWER CHECKS* |
|---|---|
| **Hoses, Filling Lines and Connections** | |
| DW.4. NC Instruction 5100.1B sets forth requirements for using, storing and marking potable water hoses. | Verify that potable water hoses are used only for transferring potable water.<br><br>Verify that potable water hoses are properly stored in accordance with section 8-6.1.2 of NC Inst. 5100.1B<br><br>Inspect hoses to ensure that hoses and storage lockers are properly marked in accordance with section 8-6.1.3 of NC Inst. 5100.1B (stenciled in blue letters reading Potable Water Only ). |
| DW.5. NC Instruction 5100.1B sets forth requirements for using potable water filling lines and connections. | Verify that filling lines are connected only to potable water tanks as per section 8-6.2.1 of NC Inst. 5100.1B.<br><br>Verify that filling connections are fitted with screw cap and keeper chain, and configured and marked in accordance with section 8-6.2.2 of NC Inst. 5100.1B. |
| **Inspection, Cleaning and Disinfection** | |
| DW.6. NC Instruction 5100.1B requires that potable water storage tanks must be opened, inspected, cleaned and, if necessary, coated at five-year intervals as a minimum. | Verify that potable water tanks have been inspected, cleaned, and maintained in accordance with section 8-6.4 of NC Inst. 5100.1B. |
| DW.7. NC Instruction 5100.1B requires that any portion of the potable water system that has been opened for inspection, repairs, contents replacement, or has been contaminated must be cleaned, disinfected and flushed before the affected portions are placed back in service. | Verify that portions of the potable water system that have been opened for inspection, repairs, contents replacement, or have been contaminated are cleaned, disinfected and flushed before the affected portions are placed back in service.<br><br>Verify that disinfection has been accomplished in accordance with section 8-6.4 of NC Inst. 5100.1B and Appendix D of the NOAA Fleet Medical Policy Manual. |
| DW.8. NC Instruction 5100.1B requires that potable water filling hoses are thoroughly flushed and disinfected before each use. | Verify that potable water filling lines are being flushed and disinfected in accordance with section 8-6.4.1 of NC Inst. 5100.1B.<br><br>Verify that disinfection procedures are posted at the location where potable water filling hoses and couplings are stored. |
| DW.9. Non-transient, non-community water systems (NTNCWS) shall conduct monitoring to determine compliance with maximum containment levels. (40 CFR 141.21 et seq.) | Auditor shall determine if shipboard potable water systems and operations meet the definitions of an NTNCWS. Auditors shall verify that if meeting the definition of an NTNCWS the vessel samples drinking water as required under Subpart C of 40 CFR 141.21. |

| *Table 21. Checklist for Drinking Water Management* | |
|---|---|
| ***REGULATORY REQUIREMENTS*** | ***REVIEWER CHECKS*** |
| DW.10. Any owner or operator of a public water system subject to Subpart D Reporting, Public Notification, and Record Keeping must report results of monitoring to the cognizant State agency and retain records of analyses on-site. | Auditors shall verify that any monitoring results required under Subpart C were reported to the cognizant State agency, and that records of the results of analyses are retained on-site. |
| DW.11 For NOAA ships not subject to the requirements in DW.9 and DW.10, equivalent procedures (as followed by the USCG) should be adopted as good management practice (COMDTPUB 5090.1). | Ensure that ship s personnel are routinely monitoring drinking water (at least weekly) to maintain a measurable residual of at least 0.2 ppm free available chlorine with a pH value in the range of 6.8 to 7.8 in all parts of the distribution system.<br><br>Ensure that ship s personnel are routinely collecting samples for bacteriological testing (recommend 4 samples from the potable water system at least monthly). More frequent tests should be made if practical. The membrane (millipore) filter technique should be employed when it is not practical to send samples ashore to a certified laboratory. |
| DW.12. Any pipe, solder, or flux which is used after June 19, 1986, in the installation or repair of any public water system shall be lead free (40 CFR 141.43 (a)). | Auditors shall verify that if any repairs were made to onboard potable water supplies, only lead-free materials were used. |

### 8.4.1 RECORDS TO REVIEW

Any bacterial and chemical analyses of drinking water that have been undertaken

Engineering records indicating when the drinking water system was inspected or repaired

Sanitary surveys of the water system conducted during NOAA Fleet Inspections.

### 8.4.2 PHYSICAL FEATURES TO INSPECT

Filling hoses, couplings and valve connections

Filling lines and connections

Storage tanks

## 8.5 SUMMARY OF CHANGES AND ISSUES

Protocol item DW.11 has been added to provide guidance on drinking water monitoring for ships not subject to SDWA requirements. These are the procedures followed by the U.S. Coast Guard as specified in COMDTPUB 5090.1.

# 9.0 PCB MANAGEMENT
# ENVIRONMENTAL COMPLIANCE PROTOCOL

This section is used to determine the compliance status of the management activities associated with polychlorinated biphenyls (PCBs) and in-service and out-of-service PCB items. The primary items relevant to NOAA vessels are PCB-containing electrical insulation, gaskets, and other solid material.

## 9.1 FEDERAL LEGISLATION

Requirements for PCBs management are specified in TSCA and reinforced in EO 12088.

### 9.1.1 THE TOXIC SUBSTANCES CONTROL ACT (TSCA)

This Act, as last amended in 1986 (15 U.S. Code (USC) 2601-2671), is the Federal legislation which deals with the control of toxic substances. The Act consists of three subchapters, one of which regulates the control of toxic substances (such as PCBs), another governs asbestos hazard emergency response, and the third subchapter regulates indoor radon abatement.

### 9.1.2 EXECUTIVE ORDER (EO) 12088, FEDERAL COMPLIANCE WITH POLLUTION STANDARDS

This EO, dated 13 October 1978, requires Federally owned and operated facilities to comply with applicable Federal, State, and local pollution control standards. It makes the head of each executive agency responsible for ensuring that the agencies, facilities, programs, and activities it funds meet applicable Federal, State, and local environmental requirements, and for correcting situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

## 9.2 STATE AND LOCAL REGULATIONS

According to the general structure of Federal regulatory programs, any State regulations must adopt the Federal regulations as a minimum set of requirements. In some cases, State regulations have been developed which regulate PCBs more stringently than the Federal program. State PCB regulations may provide additional regulatory requirements beyond the Federal program to address a specific concern or activity sensitive in that State. State regulations may supersede the Federal regulations in areas including the following:

PCBs may be regulated as a hazardous waste.

PCBs may be regulated to a lower concentration. For example, regulated PCBs in one State are defined to be materials and fluids which contain PCBs at a concentration greater than 7 ppm.

Shipments of PCBs may require manifest documents.

Analysis may be required to quantify the PCB concentration in all PCB items.

Additional inspections of select PCB items and specific disposal requirements for PCBs and PCB items may also be required.

Generators of PCBs and PCB items may be required to obtain disposal permits.

## 9.3 KEY COMPLIANCE REQUIREMENTS

Compliance with PCB management requirements encompasses protecting personnel from exposure to the substance, keeping records of any PCBs used or stored on a ship, cleaning up and reporting spills involving PCB-containing substances, applying precautions for use and inspection of transformers containing PCBs, and use of PCB in other items.

### 9.3.1 PERSONNEL AND PCBS

Certain regulations and practices should be followed to ensure the health of personnel who come in contact with PCBs. These include provision of protective work clothing, shower facilities, and facilities for washing hands during shift. Airborne contaminations of PCBs should be assessed and certain precautionary practices followed to protect personnel, which include the wearing of respirators if contamination is above a certain level. Certain records and practices should be maintained for employees exposed to PCBs, including medical histories and physical examinations emphasizing liver and skin condition.

### 9.3.2 RECORDS FOR PCBS

A written annual document log must be prepared by 1 July of each calendar year, covering the previous year for any vessels that use or store at any time at least 45 kg (99.4 lb) of PCBs contained in PCB containers, or one or more PCB transformers. Normally, NOAA vessels will not be subject to this requirement.

### 9.3.3 PCB SPILLS

Vessels are required to report to the EPA regional office spills of more than 10 pounds (4.56 kg) of PCBs of concentrations of 50 ppm. Spills of greater than 1 pound (0.45 kg) must be cleaned up. The criteria for cleanup is based on whether the spill is of high or low concentration of PCBs (40 CFR 761.120, 761,123, 761.125).

### 9.3.4 PCB TRANSFORMERS

PCB transformers with PCBs of 500 ppm or greater that are in use or in storage for reuse, must not pose an exposure risk to food and feed and are subject to registration requirements. Combustible materials, including, but not limited to, paints, solvents, plastics, paper, and wood, must not be stored by a PCB transformer. PCB transformers are required to be properly serviced, and inspections must be performed once every three months for all in-service transformers. If the transformer is found to be leaking, it must be repaired or replaced to eliminate the source of the leak. When a PCB transformer is involved in a fire, the vessel is required to immediately report the incident to the National Response Center (NRC) (40 CFR 761.120(a), 761.120(b), 761.120(c), 761.123(d)(2), and 761.125). PCB transformers are not normally carried aboard NOAA vessels.

### 9.3.5 PCB ITEMS

The use of PCBs in electromagnetic switches, voltage regulators, capacitors, heat transfer and hydraulic systems, circuit breakers, reclosers, and cable is allowed if applicable restrictions are met and precautions taken (40 CFR 761.30).

## 9.4 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable International, Federal, State, local and agency requirements. The topics addressed in the audit will vary slightly depending on specific conditions and activities on the ship. Table 22 presents guidance for the protocol checklist related to PCB management. Table 23 functions as the protocol checklist for this portion of the audit.

As part of the audit, the team must review appropriate records and inspect physical locations on the vessel. Section 9.4.1 lists records to review related to PCB management, and Section 9.4.2 lists the physical features to inspect on the vessel.

*Table 22. Guidance on PCB Management Checklist*

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO* | |
|---|---|---|
| | *CHECKLIST ITEMS* | *PAGE NUMBERS* |
| All Vessels | PCB.1 through PCB.3 | 9-4 |
| PCB Management | PCB.4 | 9-4 |
| PCB Spills | PCB.5 | 9-5 |
| PCB Items | PCB.6 through PCB.9 | 9-5 to 9-6 |

## *Table 23. Checklist for PCB Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **All Vessels** | |
| PCB.1. The current status of any ongoing or unresolved Consent Order, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/identifying information as the citation). | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements or equivalent State enforcement actions.<br><br>For those open items, indicate what corrective action is planned and milestones established to correct problems. |
| PCB.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards.<br><br>Determine if the vessel has activities or equipment which are Federally regulated, but not addressed in this checklist.<br><br>Verify that the vessel is in compliance with all applicable and newly issued regulations. |
| PCB.3. Vessels are required to comply with State and local regulations concerning PCB management (EO 12088, Sect. 1-1). | Verify that the vessel is abiding by State and local requirements.<br><br>Verify that the vessel is operating according to permits issued by the State or local agencies.<br><br>***NOTE:*** Issues typically regulated by State and local agencies include:<br>- Definitions of PCB-contaminated items and materials<br>- PCB storage, labeling, and disposal requirements. |
| **PCB Management** | |
| PCB.4. Certain equipment that contains PCBs must be marked with an ML marking (40 CFR 761.40 and 761.45). | Verify that equipment containing PCBs is marked with an ML marking that can be easily read by any person inspecting or servicing the equipment (see Appendix C for a sample of the marking). Although the following items are generally not found aboard NOAA vessels, if transported aboard NOAA vessels they will require marking.<br>- PCB containers with PCBs in concentrations of 50 to 500 ppm<br>- PCB transformers (500 ppm or greater)<br>- Electric motors using PCB coolants with a concentration of 50 to 500 ppm<br>- Hydraulic systems using PCB hydraulic fluid with concentrations of 50 to 500 ppm<br>- PCB article containers containing any of the above<br><br>***NOTE:*** Marking of PCB-contaminated electrical equipment (50 to 500 ppm) is not required.<br><br>***NOTE:*** The annual document log should contain a list of all PCB equipment at the site. |

## *Table 23. Checklist for PCB Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **PCB Spills** | |
| PCB.5. Cleanup of low-concentration spills of less than 1 lb (0.45 kg) of PCBs (less than 270 gal (1,022.26 L) of untested mineral oil) must be done according to specific requirements (40 CFR 761.120(a)(2), 761.120(b), 761.120(c), and 761.125(b)). | Verify that solid surfaces are double washed/rinsed, and all indoor surfaces other than vault areas are cleaned to 10 mg/100 $cm^2$ by standard commercial wipe tests.<br><br>Verify that the above cleanup requirements are done within 48 hours after identifying the spill unless an emergency delays the process.<br><br>Verify that the cleanup is documented with records and certification of decontamination and the records are maintained for six years. |
| **PCB Items** | |
| PCB.6. PCBs may be used in heat transfer and hydraulic systems in a manner other than a totally enclosed manner at concentrations less than 50 ppm if specific requirements are met (40 CFR 761.30(d) through 761.30(e)). | Determine if testing has been conducted to demonstrate that heat transfer or hydraulic systems that formerly contained PCBs at a concentration greater than 50 ppm now contain less than 50 ppm PCB.<br><br>Verify that no fluid containing greater than 50 ppm PCB is added to heat transfer or hydraulic systems.<br><br>Verify that results from analyses which are performed to demonstrate presence of less than 50 ppm PCB are retained for confirmation for at least five years.<br><br>Verify that heat transfer or hydraulic systems are free from leaks of dielectric PCBs. |
| PCB.7. Electromagnets, switches, and voltage regulators may contain PCBs at any concentration if certain requirements are met (40 CFR 761.30(h)). | Verify that no electromagnets are used or stored on the vessel that contain greater than 500 ppm PCB and pose an exposure risk to food or feed.<br><br>Verify that electromagnets that contain greater than 500 ppm PCB and which pose an exposure risk to food or feed are inspected at least weekly to determine if they are leaking.<br><br>Verify that electromagnets, switches, and voltage regulators that contain 500 ppm or greater PCB are not rebuilt, and no removal or reworking of internal components is done during servicing.<br><br>Verify that electromagnets, switches, and voltage regulators which contain between 50 and 500 ppm PCB (PCB-contaminated electrical equipment) are only serviced with dielectric fluid which has less than 500 ppm PCB.<br><br>Verify that PCBs removed or captured are either reused as dielectric fluid or disposed of properly.<br><br>Verify that dielectric fluid containing a mixture of fluids with less than 500 ppm PCBs are not used as dielectric fluid in any electrical equipment. |

| *Table 23. Checklist for PCB Management* | |
|---|---|
| ***REGULATORY REQUIREMENTS:*** | ***REVIEWER CHECKS:*** |
| PCB.8. Capacitors may contain PCBs at any level concentration subject to certain requirements (40 CFR 761.30(1)). | Verify that all PCB large, high- and low- voltage capacitors that pose an exposure risk to food have been removed.<br><br>Verify that all PCB large, high- and low-voltage capacitors are in use only in restricted-access electrical substations, or in a contained and restricted access indoor area.<br><br>Verify that capacitors are free from leaks of dielectric PCBs. |
| PCB.9. Circuit breakers, reclosers, and cable may contain PCBs at any concentration for the remainder of their lives subject to certain conditions (40 CFR 761.30(g), 761.30(j)\ 61.30(k)). c v | Circuit breakers, reclosers, and cable may contain PCBs at any concentration for remainder of their useful lives subject to certain conditions (40 CFR 761.3(m)). Verify that any circuit breakers, reclosers, and cables used at the facility are serviced using only dielectric fluid which contains less than 50 ppm PCB and have been free from leaks. |

### 9.4.1 RECORDS TO REVIEW

Inspection, storage, maintenance, and disposal records for PCBs/PCB items

PCB equipment inventory and sampling results

Correspondence with regulatory agencies concerning noncompliance situations

### 9.4.2 PHYSICAL FEATURES TO INSPECT

Equipment, fluids, and other items used or stored at the facility containing PCBs

## 9.5 SUMMARY OF CHANGES AND ISSUES

There were no discrepancies noted by the auditors under this section. No PCB-containing materials were noted with the exception of solid gaskets and electrical insulation which may contain PCBs.

# 10.0 PESTICIDE MANAGEMENT
# ENVIRONMENTAL COMPLIANCE PROTOCOL

This section applies to facilities which use, store or handle pesticides. Pesticides are regulated on the Federal and State levels. Pesticides are routinely used aboard ship to control insect pests, particularly in the galley, mess deck and food storage areas.

It must be noted that pesticides by nature are hazardous materials and are subject to hazardous materials management regulations. Please see Section 7, Hazardous Materials Management for additional information.

## 10.1 FEDERAL LEGISLATION

The applicable Federal Regulation dealing with pesticide management is the Federal Insecticide, Fungicide, and Rodenticide act (FIFRA), which provides guidance that promotes the safe storage and use of pesticides.

### 10.1.1 THE FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

This Act, as last amended in December 1991 (7 USC 136-136(y)), deals with the sale, distribution, transportation, storage, and use of pesticides. It requires the registration of new pesticides and, when pesticides are preregistered, requires that they will not present any unreasonable risks to human health or the environment if used according to label directions.

### 10.1.2 EXECUTIVE ORDER (EO) 12088, FEDERAL COMPLIANCE WITH POLLUTION STANDARDS

This EO, dated 13 October 1978, requires Federally-owned and operated facilities to comply with applicable Federal, State, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet applicable Federal, State, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

## 10.2 STATE AND LOCAL REQUIREMENTS

State pesticide regulatory programs are to be at least as stringent as FIFRA. State and local programs typically contain regulations which are tailored to an industry or activity which is prevalent or particularly sensitive in a State. State and local pesticide regulations in many cases provide more stringent standards or specifically identify a requirement which may be qualitatively regulated under the Federal program. State and local pesticide programs generally include regulations which address the following topics:

Restrictions or requirements for the sale, distribution, or use of selected pesticides;

Disposal requirements for excess pesticides and pesticide wastes such as pesticide containers;

Restrictions on the control of specific animal or insect species;

Operational requirements for selected application methods; and

Recordkeeping and applicator certification requirements. This may require that applicators practice Integrated Pest Management (IPM) techniques.

## 10.3 KEY COMPLIANCE REQUIREMENTS

Compliance with pesticide management requirements involves use of licensed pesticide applicators, precautions during storage, mixing and preparation of pesticide solutions, special precautions if highly toxic pesticides are used, proper disposal of unused pesticides and containers, and recordkeeping related to pesticide use.

### 10.3.1 PESTICIDE APPLICATION

People applying restricted-use pesticides must be certified to purchase and apply restricted-use pesticides. Contractors used for pest management must have current certification for the types of applications to be performed. The application of pesticides must not jeopardize the existence of threatened or endangered species. (40 CFR 171.9 and 50 CFR 402).

### 10.3.2 PESTICIDE STORAGE, MIXING, AND PREPARATION FACILITIES

Pesticide storage, mixing, and preparation activities must provide facilities and procedures to ensure safety of personnel. Facilities such as a ventilation system for all indoor pesticide mixing/preparation areas and an emergency deluge shower and eyewash station located to provide immediate access to all personnel performing mixing. Personal protective clothing and equipment need to be provided and used by pest management personnel. Pesticides, pesticide containers, and/or pesticide residues are to be stored such that it is not inconsistent with labeling (40 CFR 165.7).

### 10.3.3 HIGHLY TOXIC AND MODERATELY TOXIC PESTICIDE STORAGE AND USE

Storage facilities for pesticides and excess pesticides classed as highly toxic or moderately toxic that are labeled DANGER, POISON, or with the skull and crossbones symbol, must meet specific structural, operational (e.g., ventilation) and storage requirements. These include pesticides being kept in a dry, separate room (building) with fire protection and not near food or feed, and in containers in good condition with plainly visible labels. There should be a decontamination facility, the area must be placarded and the local fire department, hospitals, public health officials, and police departments should be notified in writing that the pesticides are being stored (MP). Such pesticides are not normally used aboard NOAA vessels.

### 10.3.4 PESTICIDE AND CONTAINER DISPOSAL

Facilities are required to dispose of any excess pesticide, pesticide container, or pesticide residue in a manner consistent with labeling, not including open dumping or burning. Non-metallic organic pesticides must be disposed according to specific procedures. Options include incineration at an incinerator that meets air quality standards for gaseous emissions. Metallo-organic pesticides such as organic mercury, lead, cadmium, and arsenic compounds, must be disposed of in a manner that facilities the recovery of heavy metals (40 CFR 165.7, 165.8 and 165.9).

### 10.3.5 RECORDKEEPING

Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain application and disposal records beyond the regulated periods of time in order to support facility compliance.

## 10.4 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable International, Federal, State, local and agency requirements. The topics addressed in the audit will vary slightly depending on specific conditions and activities on the ship. Table 24 presents guidance for the protocol checklist related to pesticide management. Table 25 functions as the protocol checklist for this portion of the audit.

As part of the audit, the team must review appropriate records and inspect physical locations on the vessel. Section 10.4.1 lists records to review related to pesticide management, and Section 10.4.2 lists the physical features to inspect of the vessel.

*Table 24. Guidance on Pesticide Management Checklist*

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO* | |
|---|---|---|
| | *CHECKLIST ITEMS* | *PAGE NUMBERS* |
| All Vessels | PM.1 through PM.3 | |
| Pesticide Accountability and Control | PM.4 through PM.5 | |
| Pesticide Training and Personal Protection | PM.6 through PM.8 | |
| Crew Safety | PM.9 through PM.10 | |
| Recordkeeping | PM.11 | |
| Pesticide Storage/Mixing/ Preparation | PM.12 through PM. 14 | |

## *Table 24. Guidance on Pesticide Management Checklist*

| *TYPE OF FACILITY, ITEM OR ACTIVITY* | *REFER TO* | |
|---|---|---|
| | *CHECKLIST ITEMS* | *PAGE NUMBERS* |
| Disposal | PM.15 | |

## *Table 25. Checklist for Pesticide Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **All Vessels** | |
| PM.1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent State enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/ identifying information as the citation.) | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, interagency agreements or equivalent State enforcement actions. For those open items, indicate what corrective action is planned and milestones established to correct problems. |
| PM.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards.<br><br>Determine if the vessel has pesticide products and activities which are Federally regulated, but not addressed in this checklist.<br><br>Verify that the vessel is in compliance with all applicable and newly-issued regulations. |
| PM.3. Vessels are required to comply with State and local pesticide regulations concerning pesticide management (EO 12088, Section 1-1). | Verify that the vessel is abiding by State and local requirements.<br><br>Verify that the vessel is operating according to permits issued by the State or local agencies.<br><br>***NOTE:*** Issues typically regulated by State and local agencies include:<br>- Applicator certification<br>- Restricted use pesticides<br>- Application procedures<br>- Banned pesticides<br>- Disposal methods<br>- Emergency application of pesticides due to public health threats<br>- Annual reporting of usages<br>- Application health monitoring<br>- Record of each application including target pest. |

## *Table 25. Checklist for Pesticide Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Pesticide Accountability and Control** | |
| PM.4. All pesticides present on the vessel must be registered or ruled exempt from the registration requirements (40 CFR 152.15 through 152.30). | Verify that pesticide products aboard the vessel are registered unless the vessel or product is considered exempt, such as the following:<br>- Certain biological control agents<br>- Certain human drugs<br>- Treated articles or substances such as paint treated with a pesticide<br>- Pheromones and pheromone traps<br>- Preservatives for biological specimens<br>- Vitamin hormone products<br>- Pesticide transferred between registered establishments operated by the same producer<br>- A pesticide distributed or sold under an experimental use permit<br>- A pesticide transferred solely for export<br>- A pesticide distributed or sold under an emergency exemption. |
| PM.5. All vessels must comply with pesticide use requirements unless an emergency exemption has been granted by the EPA (40 CFR 166.1, 166.2, 166.20, 166.28, 166.32, 166.45, 166.50). | Verify that pesticide use requirements are followed unless one or more of the following emergency conditions exist:<br>- Specific exemptions may be authorized to avoid conditions of:<br>- Significant economic loss<br>- Significant risk to threatened or endangered species<br>- Significant risk to beneficial organisms<br>- Significant risk to the environment<br>- Quarantine exemptions may be authorized to control the introduction or spread of any pest new to or unknown to be widespread throughout the United States and its territories<br>- Public health exemptions may be authorized to control a pest that imposes significant risk to human health<br>- Crisis exemptions may be utilized when the time constraint between discovery and implementation of pesticide use will not allow a specific, quarantine, or public health exemption to be issued.<br><br>Verify that applications for exemptions are submitted to the Regional Administrator in writing and include:<br>- A description of the pesticide<br>- The proposed use<br>- Target organism<br>- Any alternative means of control and why those means are not feasible.<br><br>Verify that exemptions are issued for a specific length of time, as follows:<br>- No more than one year for specific and public health exemptions<br>- For no longer than three years for a quarantine permit, but it may be renewed<br>- No longer than 15 days (unless an application for another type of exemption has been submitted) for an crisis exemption.<br><br>Verify that any unexpected adverse affects from the use of a pesticide under exemption conditions are be reported to the EPA.<br><br>Verify that a report summarizing the use of a pesticide under an exemption was submitted within six months after the expiration of the exemption to the agency (three months for a crisis exemption). |

## *Table 25. Checklist for Pesticide Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Pesticide Training and Personal Protection** | |
| PM.6. Persons applying restricted-use pesticides must be certified to apply restricted use pesticides (40 CFR 171.9). | Determine if vessel personnel apply restricted-use pesticides (see 40 CFR 152.175).<br><br>Determine if pesticide applicators are trained and/or certified.<br><br>Verify that training recertification is scheduled and performed as required to maintain certification and that certification is relevant to the pest management activities undertaken.<br><br>Verify the certification status of contractors used for pest management through interviews or contract review. |
| PM.7. Personnel routinely applying any pesticides should be trained in safety procedures and application procedures (MP). | Determine if personnel on the vessel routinely apply pesticides.<br><br>Verify that personnel are trained in appropriate handling and use procedures. |
| PM.8. Health monitoring should be provided for government personnel applying restricted use pesticides (MP). | Verify that all pest management personnel have received baseline physical examinations within 30 days of starting pest management work.<br><br>Verify that pest management personnel receive additional physical examinations once each year.<br><br>Verify that cholinesterase tests are given to pest management personnel working regularly with pesticides which contain organophosphates or N-alkyl-carbamates. |
| **Crew Safety** | |
| PM.9. Crew safety should be ensured when applying or using pesticides (MP). | Verify the elimination of hazardous exposure to the crew by checking for the following:<br>- Appropriate signs for treatment area are posted<br>- Scheduling for low use periods or restricted usage for a number of days |
| PM.10. Dining facilities should be notified at least 24 hours in advance of a pesticide application (MP). | Verify that food services personnel are notified of scheduled applications and that only compounds and procedures labeled for food service are used by applications certified in the food processing category. |
| **Record keeping** | |
| PM.11. Records should be maintained of each application of a pesticide, whether performed by ship s crew or contract labor, and retained onboard the vessel (MP). | Verify that records are kept on file for a minimum of three years.<br><br>Verify that the record of each application includes information (e.g., target organism, compound applied, dilution, quantity applied, notification/posting done, etc)., based on individual State requirements. |

## *Table 25. Checklist for Pesticide Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Storage/Mixing/Preparation Areas** | |
| ***NOTE:*** Storage areas must also meet the general requirements for the storage of hazardous materials found in 29 CFR 1910.106, see Hazardous Materials Management protocol. | |
| PM.12. Vessels are required to store any pesticide, pesticide container, or pesticide residue according to specific restrictions (40 CFR 165.7). | Verify that pesticides, pesticide containers, and/or pesticide residues are stored such that they are consistent with labeling. |
| PM.13. Pesticide storage, mixing and preparation must conducted so as to ensure safety of personnel (29 CFR 1910.133). | Determine if a ventilation system is specifically provided for all indoor pesticide mixing/preparation areas.<br><br>Verify that an emergency deluge shower and eyewash station are located to provide immediate access to all personnel performing mixing.<br><br>Verify that personal protective clothing and equipment is provided and used by pest management personnel. The following equipment depends upon magnitude and type of operations:<br>- Respirators<br>- Masks<br>- Gloves (appropriate kinds)<br>- Safety shoes<br>- Coveralls<br>- Barrier aprons<br>- Specialized personal protective equipment for fumigation.<br><br>Verify that operations include health and safety procedures emphasizing good work habits, reduction or elimination of hazards (through the use of engineering controls), and use of personal protective equipment. |
| PM.14. Pesticide storage areas should be inspected quarterly by certified applicator personnel (MP). | Verify that pesticide storage areas are inspected. |
| **Disposal** | |
| PM.15. Vessels are required to dispose of any pesticide, pesticide container, or pesticide residue according to specific restrictions (40 CFR 165.7). | Verify that pesticides, empty pesticide containers, and/or pesticide residues are disposed of such that:<br>- Disposal is not inconsistent with labeling<br>- Open dumping of pesticides or pesticide containers is not done<br>- Incineration is not used except when allowed by State and local regulation<br>- Water dumping or ocean dumping does not occur. |

### 10.4.1 RECORDS TO REVIEW

Records of pesticides acquired by the vessel (purchase orders, inventory);

Pesticide application records;

Description of the management of the facility's pest control program;

Certification status of contract pesticide applicators;

Contract files;

Disposal of pesticide containers; and

Pesticide disposal manifests and records; and

Description of personal protection program (qualification, medical monitoring, respirator maintenance/cartridge replacement, protective clothing );

### 10.4.2 PHYSICAL FEATURES TO INSPECT

Personnel protection equipment;

Pesticide application equipment;

Pesticide storage areas, including storage containers;

Observation of pesticide applications, procedures and protective equipment; and

Disposal of used containers and pesticide waste (if any).

## 10.5 SUMMARY OF CHANGES AND ISSUES: NONE

The auditors found that the use of pesticides on board NOAA ships is not a common occurrence (except for occasional use similar to household application). There were no discrepancies noted in this section aboard NOAA ships.

# 11.0 ENVIRONMENTAL RADIATION ENVIRONMENTAL COMPLIANCE PROTOCOL

This section applies to NOAA vessels which receive, use, store, handle, or discharge into the environment any radioactive materials. This section of the protocol was added in response to Draft review comments from NOAA requesting that Environmental Radiation be included. Further, a small amount of radioactive material (C-14) was present on the last vessel audited under the Draft protocol.

In general, radioactive materials are not found on NOAA vessels, and NOAA ships do not hold U.S. Nuclear Regulatory Commission (NRC) licenses. However, visiting scientists may, on occasion, bring low-level by-product material (for example, carbon-14) on board NOAA vessels for use in specific projects. In these instances, the facility sponsoring the research would hold the NRC license and would be responsible for complying with NRC regulations. The ship, however, must take precautions to ensure that ship s personnel are not exposed to ionizing radiation, and that radioactive materials are not improperly used, handled, stored, or disposed of while present on NOAA vessels.

Further, NOAA ships would be considered as providing services to the NRC licensee under 10 CFR 30.10. Persons providing services related to a licensee s activities may not engage in deliberate misconduct that causes or, but for detection, would have caused the licensee to be in violation of any rule, regulation, or order, or any term, condition, or limitation of any NRC license. This provision essentially requires that NOAA vessels carrying licensed materials be familiar with the NRC rules and regulations as well as with the license and with all of the terms, conditions, and limitations so imposed on the licensee by the NRC.

Finally, radioactive materials are, by nature, hazardous materials and are subject to hazardous materials management regulations. Workplace exposure to ionizing radiation is covered under OSHA regulations at 29 CFR 1910.1096. Please also see Section 7, Hazardous Materials Management.

In addition to ionizing radiation from radioactive materials, nonionizing radiation is a concern for naval vessels. High-energy transmitters (radar high frequency (HF) radio transmitters) are a potential source of non-ionizing radio frequency (RF) radiation which can pose a thermal radiation hazard to personnel aboard NOAA ships. These hazards could also affect persons not on the ship when the vessels are in port or in close proximity to other vessels or structures. Requirements in NC Instruction 5100.1B govern the use of sources of RF radiation hazards on NOAA vessels, and apply to all NOAA vessels equipped with HF radio transmitters. Special restrictions apply to the use of high power (>800 watts) HF transmitters aboard NOAA ships both dockside and while underway.

## 11.1 FEDERAL LEGISLATION

Federal requirements related to ionizing and nonionizing radiation address the use, possession and disposal of radioactive materials, releases to air or water environmental impacts. These are briefly described below.

### 11.1.1 ATOMIC ENERGY ACT

This act, as amended, established the NRC and empowered it to regulate the use, possession, storage and disposal of source material, by-product material and special nuclear material. Also under the authority of the Atomic Energy Act of 1954, the NRC has promulgated regulations regarding the packaging of radioactive material for transport.

### 11.1.2 LOW-LEVEL RADIOACTIVE WASTE POLICY AMENDMENTS ACT

This Act required states to establish their own capability for disposal of low-level radioactive waste generated within their borders.

### 11.1.3 FEDERAL WATER POLLUTION CONTROL ACT

Commonly known as the Clean Water Act (CWA), this is the primary Federal statute designed to restore and maintain the chemical, physical, and biological integrity of the Nation s navigable waterways. The EPA and authorized states regulate point sources of pollutants through the National Pollutant Discharge Elimination System (NPDES) Permit Program.

### 11.1.4 HAZARDOUS SUBSTANCE RELEASE REPORTING

Under CERCLA Section 103, facilities are required to notify the National Response Center immediately if they release hazardous substances in excess of or equal to reportable quantities. Facilities with continuous and stable releases have limited notification requirements (40 CFR 302.1 through 302.6, and 302.8).

### 11.1.5 THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The purpose of this Act (42 U.S. Code (USC) 4321-4370(c)), as last amended in November 1990, is to declare and implement a national policy to prevent or eliminate damage to the environment and biosphere and to stimulate the health and welfare of man (42 USC 4321). Its underlying intent is to encourage productive and enjoyable harmony between man and his environment. Under NEPA, the continuing policy of the Federal Government is to use all practicable planning, policy, and regulatory means and measures in a manner calculated to foster and promote the general welfare, and to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other needs of present and future generations of Americans (42 USC 4331(a)). Under NEPA and related laws, it is the continuing responsibility of the Federal Government to manage, monitor, and preserve the important historic, cultural, and natural aspects of our national heritage (42 USC 4331(b)(4)).

### 11.1.6 EXECUTIVE ORDER (EO) 12088, FEDERAL COMPLIANCE WITH POLLUTION STANDARDS

This EO, dated 13 October 1978, requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

## 11.2 STATE AND LOCAL REQUIREMENTS

Many states have met the NRC s requirements for establishing a state agency and management system to regulate users of radioactive material and have been granted Agreement State status. Agreement States have promulgated regulations identical to the NRC, and in some instances, have promulgated regulations that are more restrictive than those of the NRC. Since differences might exist between regulations of an Agreement State and the NRC, the assessor must review the regulations of the Agreement State to ensure that additional restrictions are included in the scope of the assessment and added to this checklist.

## 11.3 KEY COMPLIANCE REQUIREMENTS

Compliance with environmental radiation requirements involves complying with NRC licensing requirements; controlling radioactive discharges to air, water, and the environment; properly storing and managing radioactive materials and wastes; and reducing the doses of ionizing and nonionizing radiation to the public. These requirements are described below.

### 11.3.1 LICENSE REQUIREMENTS

In order for Federal facilities to possess, use, store, and dispose of radioactive materials, the facility must obtain a license from the NRC. As part of the licensing process, the facility must submit an application describing the contents of a Radiation Protection Program designed to ensure that activities meet the regulations of the NRC or Agreement State. Specific conditions stated in the license imposed by the NRC and information presented in the application for the license are enforceable. For radioactive material used on NOAA vessels, the facility conducting the research would hold the NRC license. The licensee would be responsible for complying with all provisions of the license. However, monitoring of ship s personnel using or handling the material could be a condition of the license and would need to be accommodated by the ship.

### 11.3.2 RADIOACTIVITY IN LIQUID DISCHARGE REQUIREMENTS

Under the CWA, discharges of radioactive material cannot exceed specific quantities specified in an NPDES Permit. In addition, radio nuclide discharges to the sanitary sewer must meet certain discharge limitations presented in Appendix B, Table II of 10 CFR Part 20. If any radioactive

material is discharged through the vessel s sanitary waste system while connected to shoreside services, the discharge should be logged.

### 11.3.3 AIR EFFLUENT DISCHARGE REQUIREMENTS

Under the CAA, the National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements specify that discharges of radioactivity in airborne effluents must not result in an annual effective dose equivalent exceeding 10 millirem to the public for the airborne pathway. Additionally, airborne effluents containing radioactivity measured at the point of discharge cannot exceed specific concentrations presented in 10 CFR Part 20 Appendix B, Table II. Given the low activity levels of by-product materials used on NOAA ships, air effluent discharges would not be expected to pose a compliance problem.

### 11.3.4 RADIOACTIVE WASTE MANAGEMENT REQUIREMENTS

Radioactive wastes must be segregated, stored and disposed of according to specific requirements of the NRC and the state. For by-product materials used on NOAA ships, the licensee would be responsible for disposing of any waste materials. However, all radioactive material brought on the vessel by visiting scientists must be removed by the scientists upon completion of the project on which the materials are used.

### 11.3.5 STORAGE AND HANDLING OF RADIOACTIVE MATERIALS IN SHIP S STORES

United States Coast Guard regulations concerning radioactive materials as hazardous ship s stores (46 CFR 147.100) require that radioactive materials must not be brought on board, used in any manner, or stored on the vessel unless the use of the materials is authorized by a current license issued by the NRC, and requires that stowage of these materials aboard ship must conform to the license.

### 11.3.6 DOSE TO THE PUBLIC REQUIREMENTS

The facility possessing the NRC license must demonstrate that the radiological dose to the public from activities and releases to the environment of radioactive materials does not exceed specific values. To the extent that possible public exposure involves shipboard activities, NOAA vessels may need to participate in the licensee s Radiation Protection Program.

### 11.3.7 NONIONIZING RADIATION FROM RADIO FREQUENCY (RF) EMITTERS

NOAA vessels equipped with HF radio transmitters or radar units must operate those units in such a way as not to endanger personnel on adjacent piers or vessels, or cause a hazard during ship refueling operations.

## 11.4 PROTOCOL PROCEDURES

To perform a comprehensive assessment of environmental compliance, the auditors must review applicable international, Federal, State, local and agency requirements. The topics addressed in the audit will vary slightly depending on specific conditions and activities on the ship. Table 26 presents guidance for the protocol checklist related to environmental radiation. Table 27 functions as the protocol checklist for this portion of the audit.

As part of the audit, the team must review appropriate records and inspect physical locations on the vessel. Section 11.4.1 lists records to review related to environmental radiation, and Section 11.4.2 lists the physical features to inspect on the vessel.

***Table 26. Guidance on Environmental Radiation Management Checklist***

| | REFER TO | |
|---|---|---|
| TYPE OF FACILITY, ITEM OR ACTIVITY | CHECKLIST ITEMS | PAGE NUMBERS |
| All Vessels | ER.1 through ER.3 | 11-8 |
| Vessels Carrying Radioactive Materials On Board | ER.4 through ER.16 | 11-9 through 11-13 |
| Vessels Equipped with HF Emitters | ER.17 through ER.19 | 11-14 |

***Table 27. Checklist for Environmental Radiation Management***

| REGULATORY REQUIREMENTS: | REVIEWER CHECKS: |
|---|---|
| **All Vessels** | |
| ER.1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/identifying information as the citation.) | Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements or equivalent State enforcement actions. For those open items, indicate what corrective action is planned and milestones established to correct problems. |

## *Table 27. Checklist for Environmental Radiation Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| ER.2. Vessels are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.) | Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards.<br><br>Determine if radioactive materials are used or stored on the vessel and if any activities are conducted which are Federally regulated, but not addressed in this checklist.<br><br>Verify that the vessel is in compliance with all applicable and newly issued regulations. |
| ER.3. Vessels are required to comply with State and local regulations concerning radioactive materials (EO 12088) | Verify that the vessel is abiding by State and local requirements.<br><br>Verify that the vessel is operating according to any State or local regulations. |
| **Vessels Carrying Radioactive Materials Onboard** | |
| ER.4. Radioactive materials carried aboard NOAA ships must be properly licensed through the NRC. 10 CFR 30.3; 46 CFR 147.100; and Supplement # 7 to the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual* | Determine from interviews with ship s personnel and by reviewing project instructions and hazardous materials inventories whether radioactive materials are carried aboard the ship.<br><br>Verify that any radioactive materials carried aboard the ship are authorized under a valid license issued by the NRC. |
| ER.5. The use and storage of radioactive materials aboard NOAA ships must be authorized by NOAA Corps, and points of contact must be designated shoreside (Marine Center) and aboard the ship for liaison with the scientific party. Supplement # 7 to the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual* | Verify through interviews with the cognizant Marine Center and ship s personnel and review of records that authorization for use of radioactive materials aboard the vessel was obtained prior to the cruise, and that points of contact were properly designated. |

## *Table 27. Checklist for Environmental Radiation Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| ER.6. Scientists who bring radioactive materials aboard a NOAA ship must provide a copy of the NRC license and the experimental protocol for the licensed material. Supplement #7 to the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual* | Verify through a review of the records that a copy of the NRC license was provided to the ship, and that the experimental protocol was provided that includes and addresses:<br><br>- an inventory of the amount and type of licensed material<br>- MSDSs for the licensed radioactive materials<br>- handling procedures and special storage needs<br>- security and access control<br>- procedures or requirements for monitoring exposures<br>- procedures for spill containment and cleanup<br>- disposition of all solid and liquid waste containing radioactive materials |
| ER.7. NRC licensees are required to comply with requirements for posting notices, instructions to workers and reports to individuals (10 CFR 19.11, 19.12, and 19.13)and Supplement # 7 to the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual* | Verify that the applicable NRC license and all notices and documentation required under 10 CFR 19.11 are conspicuously posted so as to permit ship's personnel engaged in activities covered by the NRC license to observe them on the way to or from the location where such activities would be conducted.<br><br>Verify that any ship's personnel working with licensed material who, in the course of employment and commensurate with the potential radiological health protection problems present in shipboard workplaces, are likely to receive in a year an occupational dose in excess of 100 millirem (1 mSv) have been instructed in accordance with 10 CFR 19.12 including:<br><br>1) being kept informed of the storage, transfer, or use of radiation and/or radioactive materials;<br><br>2) have been instructed in health protection problems associated with exposure to radiation, in precautions and procedures to minimize exposure, and in the purpose and functions of protective devices employed;<br><br>3) have been instructed in and required to observe applicable provisions of NRC regulations and licenses for the protection of personnel from exposure to radiation and/or radioactive materials;<br><br>4) their responsibility to report promptly to the licensee any condition which may lead to or cause a violation of NRC regulations or licenses or unnecessary exposure to radiation or radioactive materials;<br><br>5) appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation or radioactive materials; and<br><br>6) being advised as to the radiation exposure reports which workers may request pursuant to 10 CFR 19.13.<br><br>Verify that notifications and reports to ship's personnel engaged in activities covered by licensee's NRC license have been made in accordance with the NRC license and 10 CFR 19.13. |

## *Table 27. Checklist for Environmental Radiation Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| ER.8. NRC licensees are required to comply with Standards for Protection Against Radiation listed in 10 CFR 20. | Verify that protective measures commensurate with the scope and extent of activities covered by the licensee s NRC license and sufficient to ensure compliance with 10 CFR 20.1101 are available to ship s personnel engaged in activities covered by the license. |
| ER.9. Radioactive materials covered under an NRC license shall be secured from unauthorized removal or access, and when not in storage, shall be controlled by and under the constant surveillance of the licensee.(10 CFR 20.1801 and 10 CFR 20.1802) | Verify that radioactive materials present on NOAA vessels are stored and used so as to prevent unauthorized removal or access. |
| ER.10. Radiation areas must be posted in accordance with NRC regulations. 10 CFR 20.1901 | Verify that all radiation areas are conspicuously posted with cautionary signs complying with 10 CFR 20.1901. |
| ER.11. Containers holding licensed materials must be properly labeled. (10 CFR 20.1904 and 20.1905) | Determine whether quantities of licensed materials present on a NOAA vessel exceed the quantities listed in 10 CFR Part 20 Appendix C.<br><br>Verify that containers holding nonexempt quantities of licensed radioactive materials on NOAA vessels are conspicuously labeled with the radiation symbol prescribed in 10 CFR 20.1901 and that the container label provide sufficient information to permit individuals handling or using the container to take precautions to avoid or minimize exposures. |
| ER.12. Radioactive material covered under an NRC license shall only be disposed of by the licensee as provided by NRC regulations.<br>(10 CFR 20 Subpart K) | Verify that ship s personnel do not engage in the disposal of radioactive material covered under an NRC license. |

## *Table 27. Checklist for Environmental Radiation Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| ER.13. Vessels releasing radionuclides into the shoreside sanitary sewer must ensure that discharge limitations are not exceeded and must maintain records of such releases (10 CFR 20.2003, 20.2103(b)(4)). | Determine whether the vessel/licensee releases radionuclides into the sanitary sewer for disposal when connected to shoreside services.<br><br>Verify that the vessel/licensee only disposes of material that is readily soluble, or is readily disposable biological material, in water.<br><br>Verify that the vessel/licensee maintains records of radionuclides disposed of by releasing into the sanitary sewer.<br><br>Verify that the quantity of licensed or other radioactive material released by the vessel/licensee into the sanitary sewer in one month divided by the average monthly volume of water released into the sewer by the facility does not exceed the concentration listed in Table 3 of Appendix B to 10 CFR Part 20.<br><br>Verify that the total quantity of licensed and other radioactive material released into the sanitary sewer in a year does not exceed 5 Curies (Ci) of H-3, 1 Ci of C-14, and 1 Ci of all others combined. |
| ER.14. Monitoring of personnel and precruise and postcruise surveys to detect leaks or spills of radioactive material must be conducted to minimize risk of exposure to ship s personnel. Supplement # 7 to the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual* | Verify through review and records of interviews with ship s personnel that pre-cruise and post-cruise surveys are conducted in laboratory spaces to detect leaks or spills of licensed materials brought aboard the vessel.<br><br>Verify that the necessary monitoring equipment or supplies (for example, personal dosimeters, scintillation counters, and swab test kits) are carried on board the ship, and that routine monitoring of ship s personnel having potential exposure to radiation from the licensed material is conducted. |
| ER.15. Shoreside and shipboard personnel acting as points of contact for the licensee must have appropriate levels of training. Supplement # 7 to the *NOAA Fleet Hazardous Materials and Hazardous Waste Manual* | Verify through review of records and interviews with ship and Marine Center personnel that persons acting as points of contact with the licensee have been trained in radiation health/safety based on the potential radiological health problems in restricted areas.<br><br>At a minimum, this training should include basic radiation health and safety and emergency procedures. |
| ER.16. NOAA ship commands should hold a precruise All Hands briefing to ensure that the ship s crew are informed of the presence of radioactive materials on board as well as the ship s radioactive material policy, procedures, and responsibilities prior to embarkation | Verify through interviews with ship s personnel and a review of ship s logs that for all cruises where radioactive materials are present on the vessel, crew members are informed of the presence and onboard location of these materials prior to embarkation, and that the briefing includes a general discussion of the ship s radioactive policy, procedures, and responsibilities. |

*Table 27. Checklist for Environmental Radiation Management*

| *REGULATORY REQUIREMENTS:* | *REVIEWER CHECKS:* |
|---|---|
| **Vessels Equipped with HF Emitters** | |
| ER.17. Access to the flying bridge and other areas must be posted with hazard warnings. NC Instruction 5100.1B Section 7-11 (f). | Verify by inspection and by interviews with command personnel that access to the flying bridge is restricted during radio frequency (RF) transmissions and that signs alerting ship s onboard personnel to the hazards of RF radiation are posted near HF emitters or points of access to RF emitters. |
| ER.18. Cranes and booms where currents are induced from RF emitters must be posted as to the potential hazard, and high-power HF transmitters shall be secured while cranes or booms are in operation. NC Instruction 5100.1B Section 7-11(a)(g). | Verify by inspection and by interview with ship s personnel that the use of cranes and booms susceptible to current induction are properly posted and that the use of high-power HF transmitters are secured when cranes or booms are being operated. |
| ER.19. Use of high-power HF emitters must be restricted during refueling operations and when moored dockside or in close proximity to another vessel. High power levels should only be used when necessary to maintain effective communication. NC Instruction 5100.1B Section 7-11 (b)(d). | Verify by review of applicable documents (Standing Orders, Fuel Transfer Procedures) and by interviews with ship s personnel (Command, Engineering Department, and Deck Department) that the use of high output RF emitters is restricted during refueling operations, and when the vessel is moored dockside or in close proximity to another vessel or to shoreside structures or equipment susceptible to hazards from induced currents. |

### 11.4.1 RECORDS TO REVIEW

NRC license from facility bringing radioactive materials onboard;

Project Instruction, including experimental protocol for storing and handling radioactive materials;

Records of radioactive material quantities discharged either directly or from onboard holding tanks to shoreside sanitary sewer;

Training records for ship s personnel using or handling radioactive material;

Documentation from licensee to NOAA Corps requesting authorization for use of radioactive materials;

Authorization from NOAA Corps for the use and storage of radioactive materials by the licensee aboard NOAA vessels;

Inventories of radioactive materials including activity levels brought onto and removed from the NOAA vessel; and

Previous audits and inspections.

### 11.4.2 PHYSICAL FEATURES TO INSPECT

Laboratories

Radioactive material storage areas

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# APPENDIX A

# GLOSSARY

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# GLOSSARY

***Adequately Wetted*** Sufficiently mixed or penetrated with liquid to prevent the release of particulates (40 CFR 61.14).

***Accumulation Point*** An accumulation point is an area in or near the workplace where hazardous waste is accumulated or stored before being turned in for disposal.

***Action*** All activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to (50 CFR 402.02):

Actions intended to conserve listed species or their habitat;

The promulgation of regulations;

The granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; and

Actions directly or indirectly causing modifications to the air, landscape, soil, sediment, ground water, surface water, and/or the biota (including humans) and ecosystems affected by impacts to the quality of physical environmental media (50 CFR 402.02).

***Acute $LD_{50}$*** A statistically derived estimate of the concentration of a substance that would cause 50 percent mortality to the test population under specified conditions (40 CFR 152.3).

***Acute Hazardous Waste*** Any waste listed under 40 CFR 261.31 through 261.33(c) with a hazard code of H. These include EPA Hazardous waste numbers: F020, F021, F022, F023, F026, and F027 (if 40 CFR 261.31 and the P listed wastes in 40 CFR 261.33(e)).

***Aerosol*** A material is dispensed from its container as a mist, spray, or foam by a propellant under pressure (29 CFR 1910.106(a)(1)).

***Agreement State*** Any state with which the U.S. Nuclear Regulatory Commission or the U.S. Atomic Energy Commission has entered into an effective agreement under subsection 274b. of the Atomic Energy Act of 1954, as amended (73 Stat. 689).

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| ***Air Effluent Discharge Requirements*** | Under the Clean Air Act, the National Emission Standards for Hazardous Air Pollutants (NESHAPS) requirements specify that discharges of radioactivity in airborne effluents must not result in an annual effective dose equivalent exceeding 10 millirem to the public for the airborne pathway. Additionally, airborne effluents containing radioactivity measured at the point of discharge cannot exceed specific concentrations presented in10 CFR Part 20 Appendix B, Table II. Given the low activity levels of by-product materials used on NOAA ships, air effluent discharges would not be expected to pose a compliance problem. |
| ***ALARA*** | Acronym for "As Low As is Reasonably Achievable." Making every reasonable effort to maintain exposures to radiation as far below the dose limits as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest. |
| ***Annual Limit on Intake (ALI)*** | The derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. ALI is the smaller value of intake of a given radionuclide in a year by the reference man that would result in a committed effective dose equivalent of 5 rems (0.05 Sv) or a committed dose equivalent of 50 rems (0.5 Sv) to any individual organ or tissue. |
| ***Appliance*** | Any device that contains and uses a Class I or Class II substance as a refrigerant and that is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer (40 CFR 82.152(a)). |
| ***Approved*** | Listed or approved by Underwriters Laboratories, Inc., Factory Mutual Engineering Corporation, The Bureau of Mines, National Institute of Occupational Safety and Health (NIOSH), The American National Standards Institute (ANSI), NFPA, or other nationally recognized agencies that list, approve, test, or develop specifications for equipment to meet fire protection, health, or safety requirements (29 CFR 1910.106(a)(35)). |
| ***Asbestos Material*** | Asbestos or any material containing asbestos (40 CFR 61.141). |

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| ***Asbestos*** | Substances composed of or derived from actinolite, amosite, anthophyllite, chrysotile, crocidolite, or tremolite (40 CFR 61.14). |
| ***Asbestos-Containing Waste Materials*** | Mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of 40 CFR 141. This term also includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. However, as applied to demolition and renovation operations, this term includes regulated ACM waste and materials contaminated with asbestos, including disposable equipment and clothing (40 CFR 61.141). |
| ***Background Radiation*** | Radiation from cosmic sources; naturally occurring radioactive materials, including radon (except as a decay product of source or special nuclear material) and global fallout as it exists in the environment from the testing of nuclear explosive devices. Background radiation does not include radiation from source, by product, or special nuclear materials. |
| ***Ballast Water*** | Any water used to manipulate the draft, trim, or stability of a vessel, regardless of how it is carried on the vessel. |
| ***Barrel*** | A volume of 42 U.S. gallons (29 CFR 1910.106(a)(33)). |
| ***Becquerel*** | A unit, in the International System of Units (SI) of measurement, of radioactivity equal to one transformation per second. |
| ***Blood*** | Human blood, human blood components, and products made from human blood (29 CFR 1910.1030(a)). |
| ***Boiling Point*** | The temperature at which a liquid starts to boil when at atmospheric pressure (14.7 psia (760 mm)), as determined by ASTM test D-86-72 (29 CFR 1910.106(a)(5)). |
| ***Bulky Wastes*** | Large items of solid waste such as household appliances, furniture, large auto parts, trees, branches, stumps, and other oversize wastes which large size precludes or complicates their handling by normal solid waste collection, processing, or disposal methods (40 CFR 243.101). |

***By-Product Material***

a. Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material; and

b. The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute by-product material within this definition.

***Candidate Species***

Any plant or animal species being considered by the Secretary of Interior (SOI) for Federal listing as a rare, threatened, or endangered species under the ESA (50 CFR 404.02). This term may also apply to candidates for State-listing under comparable State laws.

***Capacitor***

A device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric. Types of capacitors are as follows (40 CFR 761.3):

Small capacitor - a capacitor which contains less than 1.36 kg (3 lb) of dielectric fluid;

Large high-voltage capacitor - a capacitor which contains 1.36 kg (3 lb) or more of dielectric fluid and which operates at 2000 volts (a.c. or d.c.) or above; and

Large Low-voltage Capacitor - a capacitor which contains 1.36 kg (3 lb) or more of dielectric fluid and which operates at 2000 volts or less (a.c. or d.c.).

***Category II Nonfriable ACM***

Any material including Category I nonfriable ACM containing more than one percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure (40 CFR 61.141).

***Category I Nonfriable Asbestos-Containing Material (ACM)***

Asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos (40 CFR 61.141).

***Caution***

The human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category III or IV must bear on the front panel the signal word CAUTION (see Toxicity Category (40 CFR 156.10(h)).

***Certified Refrigerant Recovery or Recycling Equipment*** Equipment certified by an approved equipment testing organization to meet the standards in 40 CFR 82.158(b) or (d), equipment certified pursuant to 40 CFR 82.36(a), or equipment manufactured before 15 November 1993, that meets the standards in 40 CFR 82.158(c), (e), or (g) (40 CFR 82.152(c)).

***Characteristics of Hazardous Waste*** The characteristics of ignitability, corrosivity, reactivity, and toxicity which identify hazardous waste (40 CFR 261.20 through 261.24).

***Chlorofluorocarbon (CFC)*** The chemical name for a family of chemicals used as refrigerants. The most common CFC used aboard ships is CFC-12**.**

***Closed Container*** A container so sealed with a lid or other closing device that neither liquid nor vapor will escape from it at ordinary temperatures (29 CFR 1910.106(a)(9)).

***Combustible Liquid*** A liquid having a flashpoint at or above 100°F (37.8°C). Combustible liquids are categorized as Class II or Class III liquids and are further subdivided as follows (29 CFR 1910.106(a)(18)):

Class II liquids are those having a flashpoint at or above 100°F (37.8°C) and below 140°F (60°C), except any mixture having components with flashpoints of 200°F (93.3°C) or higher, the volume of which makes up 99 percent or more of the total volume of the mixture.

Class IIIA liquids are those having flashpoints at or above 140°F (60°C) and below 200°F (93.3°C), except any mixture having components with flashpoints of 200°F (93.3°C) or higher, the total volume of which makes up 99 percent or more of the total volume of the mixture.

Class IIIB liquids are those having flashpoints at or above 200°F (93.3°C).

***Commercial Applicator*** A certified applicator, other than a private applicator, who uses or supervises the use of any pesticide, for any purpose, on any property, or performs other pest control related activities (40 CFR 171.2).

***Container*** Any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled (40 CFR 260.10).

***Contaminated Sharps*** Any contaminated object that can penetrate the skin, including but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires (29 CFR 1910.1030(a)).

***Contaminated*** The presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface (29 CFR 1910.1030(a)).

***Contiguous Zone*** The entire zone established or to be established by the United States under article 24 of the Convention on the Territorial Sea and Contiguous Zone (40 CFR 110.1) which extends from 3-12 nm from the U.S. coastline.

***Contingency Plan*** A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment (40 CFR 260.10).

***Crisis Exemption*** This is utilized in an emergency condition when the time from discovery of the emergency to the time when the pesticide use is needed is insufficient to allow for the authorization of a specific quarantine exemption or public health exemption (40 CFR 166.2).

***Curie*** The basic unit used to describe the intensity of radioactivity in a sample of material. The curie is equal to 37 billion disintegrations per second, which is approximately the rate of decay of 1 gram of radium. A curie is also a quantity of any radionuclide that decays at a rate of 37 billion disintegrations per second.

***Danger*** The human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category I must bear on the front panel the signal word DANGER (see Toxicity Category) (40 CFR 156.10(h)).

***Debris*** Solid material exceeding a 60 mm particle size that is intended for disposal and that is a manufactured object, plant or animal matter, or natural geologic material. The following materials are not debris: any material for which a specific treatment standard is provided; process residuals such as smelter slag and residues from the treatment of waste, wastewater, sludges, or air emissions residues; and intact containers of hazardous waste that are not ruptured and retain at least 75 percent of their original volume (40 CFR 268.2).

***Decontamination***

The use of physical or chemical means to remove, inactivate, or destroy blood borne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface of item is rendered safe for handling, use, or disposal (29 CFR 1910.1030(a)).

The reduction or removal of contaminating radioactive material from a structure, area, object, or person. Decontamination may be accomplished by:

a. Treating the surface to remove or decrease the contamination;

b. Letting the material stand so that the radioactivity is decreased as a result of natural decay; and

c. Covering the contamination to shield or attenuate the radiation emitted.

***Discharge or Hazardous Waste Discharge***

The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water (40 CFR 260.10).

***Discharge of Pollutant***

The addition of any pollutant to navigable waters from any point source and any addition of any pollutant to the waters of the contiguous zone or the ocean zone or the ocean from any point source, other than from a vessel or other floating craft (40 CFR 401.11(h)).

***Discharge***

When used in relation to section 311 of the Act, includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

In relation to harmful substances and effluents, discharge under MARPOL means any release, howsoever caused, from a ship that includes any escape, disposal, spilling, leakage, pumping, emitting or emptying.

***Disinfectant***

Any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process that is intended to kill or inactivate pathogenic micro-organisms (40 CFR 141.2).

***Disinfection***

A process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents (40 CFR 141.2).

***Disposal***

The process leading to and including (40 CFR 82.152(e)):

The discharge, deposit, dumping, or placing of any discarded appliance into or on any land or water;

The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; and

The disassembly of an appliance for reuse of its component parts.

The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters (40 CFR 260.10).

Intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB items (40 CFR 761.3).

***Dose Equivalent***

The product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and Sievert (Sv). The International Commission on Radiological Protection (ICRP) defines this as the equivalent dose.

***Dose to the Public Requirements***

The facility possessing the NRC license must demonstrate that the radiological dose to the public from activities and releases to the environment of radioactive materials does not exceed specific values. To the extent that possible public exposure involved shipboard activities, NOAA vessels may need to participate in the licensee s Radiation Protection Program.

***Double Wash/Rinse***

A minimum requirement to cleanse solid surfaces (both impervious and nonimpervious) two times with an appropriate solvent or other material in which PCBs are at least five percent soluble (by weight) (40 CFR 761.123).

***Effective Dose Equivalent***

The sum of the products of the dose equivalent to the organ or tissue ($H_T$) and the weighing factors ($W_T$) applicable to each of the body organs or tissues that are irradiated ($H_E = W_T H_T$). The ICRP defines this as the effective dose.

***Effluent Limitations*** Any restriction established by the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents that are discharged from point sources, other than new sources, into navigable waters, the waters of the contiguous zone, or the ocean (40 CFR 401.11(I)).

***Emergency Renovation or Repair Operation*** A renovation operation that was not planned but results from a sudden, unexpected event that if not immediately attended to presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by nonroutine failures of equipment (40 CFR 61.141).

***Endangered Species*** Any plant or animal species that is in danger of extinction throughout all or a significant portion of its range (other than noxious weeds or a species of the Class Insecta determined to constitute a pest). Federally listed endangered species are officially designated by the Department of Interior (DOI) (50 CFR 81.1). This term also may apply to state-listed species under comparable state laws.

***Exempted Public Water Systems*** The following are public water systems which are not required to meet the standards outlined in 40 CFR 141 (40 CFR 141.3):

Systems which consist only of distribution and storage facilities and do not have any collection and treatment facilities;

Systems that obtain all of their water from, but one not owned by or operated by, a public water system to which 40 CFR 141 applies;

Systems that do not sell water to any person; and

Systems that are not carriers that convey passengers in interstate commerce.

***Federally Enforceable*** All limitations and conditions enforceable by the administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable state implementation plan, and any permit requirements established pursuant to 40 CFR 52.21 or under 40 CFR 51.18 and 40 CFR 51.24 (40 CFR 60.41(b)).

***Federally Owned Treatment Works (FOTW)*** A treatment works that is owned by the Federal government. This includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature.

***Filtration*** A process for removing particulate matter from water by passage through porous media (40 CFR 141.2).

***Flammable Aerosol*** An aerosol that is required to be labeled FLAMMABLE under the Federal Hazardous Substance Labeling Act (15 USC 1261). These aerosols are considered Class IA liquids (29 CFR 1910.106(a)(19)).

***Flammable Liquid*** A liquid with a flashpoint below 100°F (37.8°C) except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture. Flammable liquids are categorized as Class I liquids, and are further subdivided as follows (29 CFR 1910.106(a)(19)):

Class IA are those that have a flashpoint below 73°F (22.8°C) and a boiling point below 100°F (37.8°C).

Class IB are those that have a flashpoint below 73°F (22.8°C) and a boiling point at or above 100°F (37.8°C).

Class IC are those that have flashpoints at or above 73°F (22.8°C) and below 100°F (37.8°C).

***Flashpoint*** The minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. Flashpoints are established using several standard closed-cup test methods (29 CFR 1910.106(a)(14)).

***Food Waste*** The organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods, commonly called garbage (40 CFR 243.101). Includes spoiled and unspoiled victual substances, such as fruits, vegetables, dairy products, meat products, food scraps and food particles.

***Foreign Source Garbage*** Goods, food wastes, wrappers, containers, and disposable materials originating in any foreign country (excluding Canada) or Hawaii, Puerto Rico, U.S., Virgin Islands, American Samoa, Guam, and the Trust Territories of the Pacific Islands.

***Fossil Fuel*** Natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat (40 CFR 60.41(a)).

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| ***Friable Asbestos Material*** | Any material that contains more than one percent asbestos by weight and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure (40 CFR 61.141). |
| ***Fugitive Emissions*** | Air pollutants entering into the atmosphere from other than a stack chimney, vent, or other functionally equivalent opening. Examples are vapors, dust, and fumes (40 CFR 51.301(j)). |
| ***Fugitive Source*** | Any source of emissions not controlled by an air pollution control device (40 CFR 61.141). |
| ***Garbage*** | In relation to USDA regulations for solid waste coming from outside the continental United States, it is all waste material derived in whole or in part from fruits, vegetables, meats, or other plant or animal material, and other refuse of any character whatsoever that has been associated with any such material on board any means of conveyance including: food scraps, table refuse, galley refuse, food wrappers, or packaging materials, and other water materials from stores, food preparation areas, passengers; or crews quarters, dining rooms, or any other areas or means of conveyance. It also means meals and other food that were available for consumption by passengers and crew on an aircraft but were not consumed (7 CFR 330.400(b)).<br><br>In relation to MARPOL Annex V, the term garbage includes all kinds of victuals and domestic and operational waste generated during normal operation of a ship. The term garbage for MARPOL therefore encompasses all forms of shipboard solid waste, including plastics, food waste, and dry waste such as paper, cardboard, and wood, which have been traditionally referred to as trash. |
| ***Generator*** | Any person, by site, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261, or whose act first causes a hazardous waste to become subject to regulation (40 CFR 260.10). (NOTE: This typically is used to refer to a facility producing hazardous waste in quantities greater than 1,000 kg/mo (2204.62 lb/mo)). |
| ***Good Marine Practice*** | Practices that, although not mandated by law, are encouraged to promote safe and environmentally sound operating procedures aboard ship. |

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| ***Graywater*** | Discarded water from deck drains, lavatories, showers, dishwashers, laundries, and garbage grinders, as well as discarded water from shipboard medical facilities. Does not include industrial wastes, infectious wastes, and human body wastes. |
| ***Half-life*** | The time in which half the atoms of a particular radioactive substance disintegrate to another nuclear form. Measured half-lives vary from millionths of a second to billions of years. Also called physical half-life. |
| ***Hazardous Waste*** | A solid waste identified as a characteristic or listed hazardous waste in 40 CFR 261.3 (40 CFR 260.10). |
| ***Hazardous Debris*** | Debris that contains a hazardous waste or that exhibits a characteristic of hazardous waste (40 CFR 268.2). |
| ***Hazardous Chemical*** | In relationship to laboratories, a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees (29 CFR 1910.1450(b)). |
| ***High-Level Radioactive Waste*** | a. Irradiated reactor fuel,<br>b. Liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, and<br>c. Solids into which such liquid wastes have been converted. |
| ***High Radiation Area*** | Any area accessible to personnel in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 100 mrems (29 CFR 1910.96(d)(3)(iii)). |
| ***High Concentration PCBs*** | PCBs that contain 500 ppm or greater PCBs, or those materials which the EPA requires to be assumed to contain 500 ppm or greater PCBs in the absence of testing (40 CFR 761.123). |
| ***Household Waste*** | Any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use-recreation areas) (40 CFR 258.2). |

***Hydrochlorofluoro-carbon (HCFC)*** The chemical name for a family of chemicals used as refrigerants. The most common HCFC used aboard ship is HCFC - 22.

***Imminent Hazard*** A situation that exists when the continued use of a pesticide during the time required for cancellation proceedings would be likely to result in unreasonably adverse effects on the environment or will involve unreasonable hazard to the survival of a species declared endangered by the Secretary of the Interior (SOI) under PL 91-135 (40 CFR 165.1).

***Incinerator*** An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace (40 CFR 260.10).

Any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter (40 CFR 60.51).

***Incompatible Waste*** A hazardous waste that is unsuitable for (40 CFR 160.10):

Placement in a particular device or facility because it may cause corrosion or decay of containment materials (e.g., container liners or tank walls); or

Commingling with another waste or material under uncontrolled conditions because the commingling conditions produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mist, fumes, or gases, or flammable fumes or gases.

***Infectious Waste*** This includes (40 CFR 240.101):

Equipment, instruments, utensils, and fomites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies;

Laboratory wastes such as pathological specimens and disposable fomites (any substance that may harbor or transmit pathological organisms);

Surgical operating room pathological specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

***Laboratory Scale*** Work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person (29 CFR 1910.1450(b)).

***Laboratory Use of a Hazardous Chemical***

Handling or use of such chemicals in which all of the following conditions are met (29 CFR 1910.106(a)(17)):

Chemical manipulations are carried out on a laboratory scale;

Multiple chemical procedures or chemicals are used;

The procedures involved are not part of a production process, nor in any way simulate a production process; and

Protective laboratory practices and equipment are available and are in common use to minimize the potential for employee exposure to hazardous chemicals.

***Laboratory***

A facility where the laboratory use of hazardous chemicals occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a nonproduction basis (29 CFR 1910.1450(b)).

***Leak or Leaking***

Any instance in which a PCB article, PCB container, or PCB equipment has any PCBs on any portion of its external surface (40 CFR 761.3).

***License Requirements***

In order for Federal facilities to possess, use, store, and dispose of radioactive materials, the facility must obtain a license from the NRC. As part of the licensing process, the facility must submit an application describing the contents of a Radiation Protection Program designed to ensure that activities meet the regulations of the NRC or Agreement State. Specific conditions stated in the license imposed by the NRC, and information presented in the application for the license are enforceable. For radioactive material used on NOAA vessels, the facility conducting the research would hold the NRC license. The licensee would be responsible for complying with all provisions of the license. However, monitoring of ship s personnel using or handling the material could be a condition of the license, and would need to be accommodated by the ship.

***Liquid***

Any material with a fluidity greater than that of 300 penetration asphalt when tested in accordance with ASTM Test D-5-73. When not otherwise identified, the term liquid will include both flammable and combustible liquid (29 CFR 1910.106(a)(17)).

***Low Concentration PCBs***

PCBs that are tested and found to contain less than 500 ppm PCBs or those PCB-containing materials which EPA requires to be assumed to be at concentrations below 500 ppm (e.g., untested mineral oil dielectric fluid) (40 CFR 761.123).

***Low-Level Radioactive Waste*** — Radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or by-product material.

***Major Maintenance, Service, or Repair*** — Any maintenance, service, or repair involving the removal of any or all of the following appliance components (40 CFR 82.152(j)):

Compressor;

Condenser;

Evaporator; and

Auxiliary heat exchanger coil.

***Management Practice (MP)*** — Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

***Management or Hazardous Waste Management*** — The systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of hazardous waste (40 CFR 260.10).

***Manifest*** — The shipping document originated and signed by the generator of hazardous waste containing the information required by 40 CFR 262, Subpart B (40 CFR 260.10)

***Marine Sanitation Devices*** — Any equipment on board a ship or craft which is designed to receive and treat sewage to a level acceptable for overboard discharge, or which receives and retains sewage on board for later discharge ashore or in waters where discharge is permissible. Marine Sanitation Devices include Type I, II, and III devices as follows:

***Type I***. Flow through and discharge device designed to receive and treat sewage aboard ship and produce an overboard effluent with a fecal coliform count of not more than 1,000 per 100 milliliters and no floating solids.

***Type II***. Flow through and discharge device designed to receive and treat sewage that produces an overboard effluent with a fecal coliform count of not more than 200 per 100 milliliters and total suspended solids of not more than 150 milligrams per liter.

***Marine Sanitation Devices (continued)***

***Type III***. A device designed to prevent the overboard discharge of treated or untreated sewage or any waste derived from sewage. Different variations of Type III devices include:

a. Non-flow-through device designed to collect shipboard sewage by means of vacuum or other reduced-flush systems and to hold the sewage while transiting waters (0-3 nm). This type may include equipment for ship-board evaporation and incineration of collected sewage.

b. Collection, holding, and transfer system designed to collect both sewage and graywater while in port; to offload sewage and graywater to suitable shore receiving facilities; to hold sewage while transiting within 0-3 nm; and to discharge both sewage and graywater overboard while operating beyond 3 nm.

***Mark***

The descriptive name, instructions, cautions, or other information applied to PCBs and PCB items, or other objects subject to these regulations (40 CFR 761.3).

***Marking***

The marking of PCB items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the requirements of these regulations (40 CFR 761.3).

***Material Safety Data Sheet (MSDS)***

Written or printed material that contains information on hazardous chemicals such as common name, physical hazards, and health hazards (29 CFR 1910.1200(c)).

***Medical/Pathological Wastes***

Any solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals. This does not include hazardous waste or household waste (40 CFR 259.10).

***Medical Waste***

When defined as applicable to municipal waste combustors, it is any solid waste generated in the diagnosis, treatment, or immunization of human beings or animals; in research pertaining thereto; or in production or testing of biologicals. Medical waste does not include any hazardous waste identified under the Resource Conservation and Recovery Act (RCRA), Subtitle C, or any household waste as defined in RCRA Subtitle C (40 CFR 260.51(a)).

***Member of the Public*** An individual in a controlled or unrestricted area. However, an individual is not a member of the public during any period in which the individual receives an occupational dose.

***Movement*** That hazardous waste transported to a facility in an individual vehicle (40 CFR 260.10).

***Municipal Solid Waste*** Residential and commercial solid wastes generated within a community (40 CFR 240.101).

***Navigable Waters*** The waters of the United States, including the territorial seas. Navigable waters do not include prior converted cropland. The terms includes (40 CFR 110.2):

All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;

Interstate waters, including interstate wetlands;

All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, and wetlands, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce, including any such waters:

That are or could be used by interstate or foreign travelers for recreational or other purposes;
From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; and
That are used or could be used for industrial purposes by industries in interstate commerce.

All impoundments of waters otherwise defined as navigable waters under this section;

Tributaries of waters identified above, including adjacent wetlands; and

Wetlands adjacent to waters identified above.

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| ***Navigable Waters*** | All navigable waters of the United States; tributaries of navigable waters of the United States; interstate waters, intrastate lakes, rivers, and streams that are utilized by interstate travelers for rivers; and streams that are utilized by interstate travelers for recreational or other purposes; intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce; and intrastate lakes, rivers, and streams that are utilized for industrial purposes by industries in interstate commerce. Navigable waterways do not include prior converted cropland (40 CFR 401.11(l)). |
| ***No-Discharge Zone*** | A zone where all discharges of treated or untreated sewage is prohibited in accordance with the provisions of 40 CFR 140. *No Discharge Zones designated by the EPA Regional Administrators as of July 1, 1997 are listed in Table 6.* |
| ***Nonionizing Radiation from Radio Frequency (RF) Emitters*** | NOAA vessels equipped with HF radio transmitters or radar units must operate those units in such a way as to not endanger personnel on adjacent piers or vessels, or cause a hazard during ship refueling operations. |
| ***Non-transient Non-community Water System (NTNCWS)*** | A public water system that is not a community water system and that regularly serves at least of the same 25 persons over 6 months per year. |
| ***Normally Containing a Quantity of Refrigerant*** | Containing the quantity of refrigerant within the appliance or appliance component when the appliance is operating with a full charge of refrigerant (40 CFR 82.152(m)). |
| ***National Pollution Discharge Elimination System (NPDES) Permit*** | A permit granted by EPA to a direct discharger that permits wastewater discharge to a watercourse in accordance with the conditions of the permit (40 CFR 403.3(l)). |
| ***Occupational Dose*** | The radiation dose received by an individual in a restricted area or in the course of employment in which the individual s assigned duties involve exposure to radiation and to radioactive material from licensed and unlicenced sources of radiation, whether in the possession of the licensee or other person. Occupational dose does not include dose received from background radiation, as a patient from medical practices, from voluntary participation in medical research programs, or as a member of the general public. |

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| ***Oil*** | When used in relation to Section 311 of the Act, means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil (40 CFR 110.2 and 33 CFR 153.103). |
| ***On-site*** | The same or geographically continuous property which may be divided by a public right-of-way, provided the entrance and exit between the properties is at a cross-roads intersection and access is obtained by crossing rather than going along the right-of-way (40 CFR 260.10). |
| ***Opacity*** | The degree to which emissions reduce the transmission of light and obscure view of an object in the background (40 CFR 60.2). |
| ***Opening an Appliance*** | Any service, maintenance, or repair on an appliance that could be reasonably expected to release refrigerant from the appliance to the atmosphere unless the refrigerant were previously recovered from the appliance (40 CFR 82.152(n)). |
| ***Ozone Depleting Substance (ODS)*** | A substance that chemically reacts with ozone to decrease ozone levels in the atmosphere. Such substances include refrigerants (CFCs and HCFCs), fire suppression agents (Halon) and chlorinated solvents. |
| ***Particulate Matter Emissions*** | Any airborne, finely divided solid or liquid material except uncombined water that is emitted to the ambient air (40 CFR 60.2). |
| ***Particulate Asbestos Material*** | Finely divided particles of asbestos or material containing asbestos (40 CFR 61.141). |
| ***Pathogenic Organisms*** | Disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova (40 CFR 503.31(f)). |
| ***PCB Transformer*** | Any transformer that contains 500 ppm PCB or greater (40 CFR 761.3). |
| ***PCB Item*** | Any PCB article, PCB article container, PCB container, or PCB equipment that deliberately or unintentionally contains or has as a part of it any PCB or PCBs (40 CFR 761.3). |
| ***PCB Waste*** | Those PCBs and PCB items that are subject to the disposal requirements of Subpart D of 40 CFR 761 (40 CFR 761.3). |

***PCB Equipment*** Any manufactured item, other than a PCB container or a PCB article container, which contains a PCB article or other PCB equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures (40 CFR 761.3).

***PCB or PCBs*** A chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance (40 CFR 761.3).

***PCB Article*** Any manufactured article, other than a PCB container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. This includes capacitors, transformers, electric motors, pumps, and pipes (40 CFR 761.3).

***PCB Article Container*** Any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB articles or PCB equipment, and whose surface(s) has not been in direct contact with PCBs (40 CFR 761.3).

***PCB-Contaminated Electrical Equipment*** Any electrical equipment, including but not limited to transformers, capacitors, circuit breakers, reclosers, voltage, regulators, switches, electromagnets, and cable, that contain 50 ppm or greater PCB, but less than 500 ppm PCB (40 CFR 761.3).

***Pesticide Product*** A pesticide in the particular form (including composition, packaging, and labeling) in which the pesticide is, or is intended to be, distributed or sold. This includes any physical apparatus used to deliver or apply the pesticide if distributed or sold with the pesticide (40 CFR 152.3).

***Pesticide*** Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or disinfectant; and is further categorized into the following (40 CFR 165.1):

Excess pesticides means all pesticides that cannot be legally sold pursuant to the Act or that are to be discarded;

Organic pesticides means carbon-containing substances used as pesticides, excluding metallo-organic compounds;

Inorganic pesticides means noncarbon-containing substances used as pesticides;

Metallo-organic pesticides means a class of organic pesticides containing one or more metal or metalloid atoms in the structure.

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| ***Planned Renovation Operations*** | A renovation operation, or a number of such operations, in which the amount of friable asbestos material that will be removed or stripped within a given period of time can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience (40 CFR 61.141). |
| ***Plastics*** | With respect to MARPOL, means a solid material which contains as an essential ingredient one or more synthetic organic high polymers which is formed (shaped) during either manufacture of the polymer or the fabrication into a finished product by heat and/or pressure. Plastics have material properties ranging from hard and brittle to soft and elastic. Plastics are used for a variety of marine purpose, including but not limited to: packaging (vapor-proof barriers, bottle, containers, liners), ship construction (fiberglass and laminated structures, siding, piping, insulation, flooring, carpets, fabrics, paints and finishes, adhesives, electrical and electronic components), disposable eating utensils and cups, bags, sheeting, floats, fishing nets, strapping bands, rope and line. |
| ***Pollution Prevention*** | The term includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training or inventory control as defined in the Pollution Prevention Act. |
| ***Pretreatment*** | The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW (40 CFR 403.3(q)). |
| ***Protection for Exposure*** | Adequate fire protection for structures on property adjacent to tanks where employees of the establishment are located (29 CFR 1910.106(a)(27)). |
| ***Public Health Exemption*** | This may be authorized in an emergency condition to control a pest that will cause a significant risk to human health (40 CFR 166.2). |
| ***Public Vessel*** | A vessel owned or bare boat chartered and operated by the United States, or by a State or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce (40 CFR 110.2 and 33 CFR 153.103). |

***Public Water System*** A system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. This term includes:

Any collection, treatment, storage, and distribution facilities under control of the operator of such system, and

Any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

A public water system is either a community water system or a noncommunity water system (40 CFR 141.2).

***Publicly Owned Treatment Works (POTW)*** Any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a State or municipality (as defined by section 502(4) of the CWA). This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment (40 CFR 260.10).

A treatment works that is owned by the State or a municipality. This includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey waste to a POTW (40 CFR 403.3(o)).

***Quarantine Exemption*** This may be authorized in an emergency condition to control the introduction or spread of any pest new to or not theretofore known to be widely prevalent or distributed within and throughout the United States and its territories (40 CFR 166.2).

***Radiation*** Includes alpha rays, beta rays, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles, but does not include sound or radio waves, visible light, or infrared or ultraviolet (29 CFR 1910.96(a)(1)).

***Radiation (ionizing radiation)*** Alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles capable of producing ions. The term does not include nonionizing radiation, such as radio- or microwaves, or visible, infrared or ultraviolet light. [10 CFR 20.1003]

***Radioactive Material*** Any material that emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations (29 CFR 1910.96(a)(2)).

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| ***Radioactive Waste Management Requirements*** | Radioactive wastes must be segregated, stored and disposed of according to specific requirements of the NRC and the state. For by-product materials used on NOAA ships, the licensee would be responsible for disposing of any waste materials. However, all radioactive material brought on the vessel by visiting scientists must be removed by the scientists upon completion of the project on which the materials are used. |
| ***Radioactivity in Liquid Discharge Requirements*** | Under the Clean Water Act, discharges of radioactive material cannot exceed specific quantities specified in a NPDES Permit. In addition, radionuclide discharges to the sanitary sewer must meet certain discharge limitations presented in Appendix B, Table II of 10 CFR Part 20. If any radioactive material is discharged through the vessel s sanitary waste system while connected to shoreside services, the discharge should be logged. |
| ***Reclaim Refrigerant*** | To process refrigerant to at least the purity specified in the ARI Standard 700-1988, *Specifications for Fluorocarbon Refrigerants* (Appendix A to 40 CFR 82, Subpart F) and to verify this purity using the analytical methodology prescribed in the ARI Standard 700-1988. In general, reclamation involves the use of processes or procedures available only at a reprocessing or manufacturing facility (40 CFR 82.52(q)). |
| ***Recover Refrigerant*** | To remove refrigerant in any condition from an appliance without necessarily testing or processing it in any way (40 CFR 82.52(r)). |
| ***Recovery Efficiency*** | The percentage of an appliance that is recovered by a piece of recycling or recovery equipment (40 CFR 82.152(s)). |
| ***Recycle Refrigerant*** | To extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices, such as replaceable core filter-driers, which reduce moisture, acidity, and particulate matter. These procedures are usually implemented at the field job site (40 CFR 82.152(t)). |
| ***Recycling*** | The process by which recovered materials are transformed into new products (40 CFR 245.101). |

***Regulated Wastes*** Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling, contaminated sharps, and pathological and microbiological wastes containing blood or other potentially infectious materials (29 CFR 1910.1030(a)).

***Regulated Asbestos-Containing Material (RACM)*** Includes friable asbestos material; Category I nonfriable asbestos-containing material that has become friable; Category I nonfriable asbestos-containing material that has been subjected to grinding, casting, cutting, or abrading; and Category II nonfriable asbestos-containing material that has a high probability of becoming crumbled, crushed, or pulverized (40 CFR 61.141).

***Renovation*** Altering in any way one or more structure components. Operations in which load-supporting structural members are wrecked or taken out are excluded (40 CFR 61.141).

***Restricted Use Pesticides*** Pesticides designated for restricted use under the provisions of Section 3(d)(1)(c) of FIFRA (40 CFR 171.2).

***Runoff*** Any rainwater, leachate, or other liquid that drains over land from any part of a facility (40 CFR 260.10).

***Safety Can*** An approved flammable liquid container having a spring-closing lid, spout cover, and other features designed to safely relieve internal pressure and to provide safe storage for the liquid (29 CFR 1910.106(a)(29)).

***Select Carcinogens*** Any substance that meets *one* of the following criteria (29 CFR 1910.1450(b)):

It is regulated by OSHA as a carcinogen;

It is listed under the category "known to be carcinogens" and in the Annual Report on Carcinogens published by the National Toxicology Program (NTP);

It is listed under Group 1 (carcinogenic to humans) by the International Agency for Research on Cancer Monographs (IARC); or

It is listed in either Group 2A or 2B by IARC or under the category "reasonably anticipated to be carcinogens" by NTP, and causes statistically significant tumor incidences in experimental animals under specific situations.

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| ***Self-Contained Recovery Equipment*** | Refrigerant recovery or recycling equipment capable of removing the refrigerant from an appliance without the assistance of components contained in the appliance (40 CFR 82.152(u)). |
| ***Sewage*** | Human body wastes and the wastes from toilets and other receptacles intended to receive and retain body wastes. |
| ***Sheen*** | An iridescent appearance on the surface of the water (40 CFR 110.2). |
| ***Sludge*** | An aggregate of oil or oil and other matter of any kind in any form other than dredged spoil, having a combined specific gravity equivalent to or greater than water (40 CFR 110.2). |
| ***Small Appliance*** | Any of the following products that are fully manufactured, charged, and hermetically sealed in a factory with 5 lb (11.02 kg) or less of refrigerant (40 CFR 82.152(v)):<br>Refrigerators designed for home use;<br>Freezers designed for home use;<br>Room air conditioners (including window air conditioners and packaged terminal air conditioners);<br>Packaged terminal heat pumps;<br>Dehumidifiers;<br>Under-the-counter ice makers;<br>Vending machines; and<br>Drinking water coolers. |
| ***Solid Waste*** | Garbage, refuse, sludge, and other discarded solid materials resulting from industrial and commercial operations and from community activities. It does not include solids or dissolved materials in domestic sewage or other significant pollutants in water resources (40 CFR 240.101). |
| ***Source Separation*** | The setting aside of recyclable materials at their point of generation by the generator (40 CFR 246.101). |

***Specific Exemption*** This exemption may be authorized in an emergency condition to avert:

A significant economic loss;

A significant risk to endangered species, threatened species, beneficial organisms, or the environment(40 CFR 166.2):

***Spill Event*** A discharge of oil into or upon the navigable waters of the United States or adjoining shorelines in harmful quantities (40 CFR 112.3).

***Storage*** The holding of hazardous wastes for a temporary period, at the end of which the hazardous wastes are treated, disposed of, or stored elsewhere (40 CFR 260.10).

***Storage and Handling of Radioactive Materials in Ships Stores*** United States Coast Guard regulations concerning radioactive materials as hazardous ship s stores (46 CFR 147.100) require that radioactive materials must not be brought on board, used in any manner, or stored on the vessel unless the use of the materials is authorized by a current license issued by the NRC, and requires that stowage of these materials aboard ship must conform to the license.

***Structural Member*** Any load-supporting member of a structure, such as beams and load-supporting walls, or any nonload-supporting member, such as ceilings and nonload-supporting walls (40 CFR 61.141).

***System-Dependent Recovery Equipment*** Refrigerant recovery equipment that requires the assistance of components contained in an appliance to remove the refrigerant from the appliance (40 CFR 82.152(w)).

***Technician*** Any person who performs maintenance, service, or repair that could reasonably be expected to release Class I or Class II substances from appliances into the atmosphere, including but not limited to, installers, contractor employees, in-house service personnel, and, in some cases, owners. Technician also means any person disposing of an appliance except for small appliances (40 CFR 82.152(x)).

***Threatened Species*** Any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its geographic distributional range. Federally listed threatened species are officially designated by the Department of Interior (DOI) (50 CFR 81.21). This term also may apply to State-listed species under comparable State laws.

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| ***Toxicity Category*** | Required warnings and precautionary statements are based on the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown in the table listed in 40 CFR 156.10 (40 CFR 156.10(h)). |
| ***Transuranic Waste*** | Material contaminated with elements that have an atomic number greater than 92, including neptunium, plutonium, americium, and curium, and that are in concentrations greater than 10 nanocuries per gram, or in such other concentrations as the Nuclear Regulatory Commission may prescribe to protect the public health and safety. |
| ***Treatment Works*** | Either a Federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature (40 CFR 503.9(aa)). |
| ***Used Oil*** | Any oil that has been refined from crude oil or any synthetic oil that has been used and as a result of such use is contaminated by physical or chemical impurities (40 CFR 279.1). |
| ***Vapor Pressure*** | The pressure, measured in psia, exerted by a volatile liquid (29 CFR 1910.106(a)(30)). |
| ***Vector*** | A carrier, usually an arthropod, that is capable of transmitting a pathogen from one organism to another (40 CFR 240.202). |
| ***Vessel*** | Every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel (40 CFR 110.2). |
| ***Visible Emissions*** | Any emissions that are visually detectable without the aid of instruments, and that are derived from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed water vapor (40 CFR 61.141). |
| ***Volatile Organic Compounds (VOCs)*** | Any compound of carbon (excluding CO, $CO_2$, carbonic acid, metallic carbides, carbonates, and ammonium carbonate) that participates in atmospheric photochemical reactions (40 CFR 51.100). |

***Warning-*** The human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word WARNING (see 40 CFR 156.10 for listing of indicators necessary to meet specific criteria of toxicity categories) (40 CFR 156.10(h)).

***Worker*** An individual engaged in activities licensed by the Nuclear Regulatory Commission and controlled by a licensee, but does not include the licensee. [20 CFR 19.3]

# APPENDIX B

# ONCO COMMENTS ON THE DRAFT PROTOCOL

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# APPENDIX C

# PCB LABEL FORMAT

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**CAUTION**

**Contains**
**PCBs**
**(Polychlorinated Biphenyls)**

**A toxic environmental contaminant requiring special handling and disposal in accordance with U.S. Environmental Protection Agency Regulations 40.CFR 761.**

**For disposal information, contact the nearest U.S. EPA office**

**In case of accident or spill, call toll free the U.S. Coast Guard response center: 800-424-8802.**

**Also contact: _____**

**Tel. No.: _____**

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# APPENDIX D

# LIST OF ACRONYMS

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# ACRONYMS

| | |
|---|---|
| ACM | Asbestos-Containing Material |
| ALARA | As Low As Reasonably Achievable |
| AMC | Atlantic Marine Center |
| APPS | Act to Prevent Pollution from Ships |
| AQCR | Air Quality Control Region |
| ASNAA | Aviation Safety and Noise Abatement Act of 1979 |
| CAA | Clean Air Act |
| CAAA | Clean Air Act Amendments |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| CESQG | Conditionally-Exempt Small Quantity Generator |
| CFC | Chlorinated Fluorocarbons |
| CFR | Code of Federal Regulations |
| CNO | Chief of Naval Operations |
| COTPs | Captain of the Ports |
| DoD | Department of Defense |
| DOI | Department of the Interior |
| DOT | Department of Transportation |
| EO | Executive Order |
| EPA | Environmental Protection Agency |
| EPCRA | Emergency Planning and Community Right-to-Know Act (SARA Title III) |
| ESA | Endangered Species Act of 1993 |
| FFCA | Federal Facilities Compliance Act |
| FIFRA | Federal Insecticide, Fungicide, and Rodenticide Act |
| FOTW | Federally-owned Treatment Works |
| FWPCA | Federal Water Pollution Control Act of 1972 |
| HAZCOM | Hazard Communication |
| HCFC | Hydrochlorofluorocarbon |
| HF | High Frequency |
| HW/HM | Hazardous Waste/Hazardous Materials |

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|---|---|
| IARC | International Agency for Research on Cancer |
| IMO | International Maritime Organization |
| IPM | Integrated Pest Management |
| LD50 | Lethal Dose that kills 50% of a given population |
| MARPOL | Maritime Police |
| MMPA | Marine Mammal Protection Act |
| MP | Management Practice |
| MPRSA | Marine Protection, Research and Sanctuaries Act of 1972 |
| MSD | Marine Sanitation Device |
| MSDS | Material Safety Data Sheets |
| MSWL | Municipal Solid Waste Landfills |
| NAAQS | National Ambient Air Quality Standards |
| NC | NOAA Corps |
| NEPA | National Environmental Policy Act |
| NFPA | National Fire Protection Association |
| NHPA | National Historic Preservation Act |
| NPDES | National Pollution Discharge Elimination System |
| NOAA | National Oceanic and Atmospheric Administration |
| NOVs | Notice of Violations |
| $NO_x$ | Nitrous Oxides |
| NRC | Nuclear Regulatory Commission, or National Response Center (for PCBs) |
| NSPS | New Source Performance Standards |
| NSR | New Source Review |
| NTNCWS | Non-Transient, Non-Community Water System |
| NTP | National Toxicology Program |
| ODA | Ocean Dumping Act |
| ODS | Ozone-Depleting Substances |
| ONCO | Office of NOAA Corps Operations |
| OPA | Oil Pollution Act of 1990 |
| ORM | Other Regulated Materials |
| OSHA | Occupational Safety and Health Administration and Occupational Safety and Health Act |

| | |
|---|---|
| OWHT | Oily Water Holding Tank |
| OWS | Oily Water Separator |
| PCB | Polychlorinated Biphenyls |
| PL | Public Law |
| $PM_{10}$ | Particulate Matter, 10 microns in size or less |
| PMC | Pacific Marine Center |
| POTW | Publicly-owned Treatment Works |
| PSD | Prevention of Significant Deterioration |
| RACM | Regulated Asbestos-Containing Material |
| RCRA | Resource Conservation and Recovery Act |
| RF | Radio Frequency |
| RQ | Reportable Quantity |
| SARA | Superfund Amendments and Reauthorization Act |
| SDWA | Safe Drinking Water Act |
| SIPs | State Implementation Plans |
| $SO_2$ | Sulfate Dioxide |
| SOI | Secretary of the Department of the Interior |
| SOPEP | Shipboard Oil Pollution Emergency Plans |
| SQG | Small Quantity Generator |
| TSCA | Toxic Substances Control Act |
| TSDF | Treatment, Storage and Disposal Facility |
| USC | United States Code |
| USCG | United States Coast Guard |
| USDA | United States Department of Agriculture |
| USPHS | United States Public Health Service |
| VOC | Volatile Organic Compound |

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